

Review of the Literature

Marco N. Barusco, MD *Port Orange, Florida, USA* drbarusco@tempushair.com



BOOK: "Cicatricial Alopecia: An Approach to Diagnosis and Management"

AUTHORS: Vera Price and Paradi Mirmirani

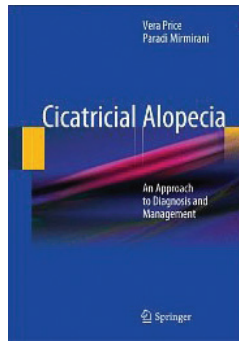
ORIGINAL PUBLICATION DATE: 2011

PUBLISHER: Springer New York

ISBN: 978-1-4419-8398-5 ; e-ISBN: 978-1-4419-8399-2

As hair loss specialists, it is not unusual for us to see patients who were referred for a diagnostic workup and treatment of their cicatricial alopecia, so we all need to be very familiar with the diagnosis and treatment of these clinical entities. Due to the many forms of cicatricial alopecia, it is important to understand their physiopathology and the particular presentations of each type.

This monograph by Drs. Price and Mirmirani—with collaboration from the Cicatricial Alopecia Research Foundation (CARF)—is a very easy read and very educational. It is refreshing to come across a book that teaches such a complex topic in such a natural, intuitive way. This is possible due to the method used by the authors to convey the information presented, which relies heavily on the use of rich pictures and illustrations, case scenarios, detailed diagnostic clues, and practical discussions on treatment choices.



The chapters are arranged in a logical, sequential order, covering everything from the clinical assessment of the patient to dermatopathology and the different types of cicatricial alopecia. At the end of each chapter a concise list of suggested reading material is given, which provides the reader with a few selected references for further education. The last chapter is particularly interesting because it includes personal experiences from actual patients. This will give the reader a clear insight into what these patients go through and how difficult and frustrating it can be to find the right specialist and treatment for their problem.

Dr. Price, Dr. Mirmirani, the CARF, and the other many collaborators to this book need to be congratulated for gracing us with this important monograph. Since I received it, I find myself going back to it over and over again. It has proven to be a very important piece of my personal medical reference library and an important resource when teaching other physicians. ♦

Cowgirl Hair Loss Workshop

ISHRS Regional Workshop

Hosted by Carlos J. Puig, DO

Houston, Texas
March 14-17, 2013

REGISTER ONLINE

www.CowgirlHairLoss.com

QUESTIONS? CALL US!

1-713-974-1808

HELPING LADIES WITH HAIR LOSS

- ★ Nearly 50% of women experience noticeable hair loss.
- ★ About 40% of women with hair loss are candidates for a surgical intervention.
- ★ Few physicians are familiar with the complex evaluation that identifies these patients.
- ★ This program is designed to organize the hair restoration surgeon's strategic approach to these ladies.

LEARNER OBJECTIVES

- ★ Recognize reasons of female hair loss.
- ★ Identify the clinical tools for female hair loss diagnosis with emphasis on hormone tests and computerized methods for scalp hair growth measurements.
- ★ Define the rules of conservatively treating women with female hair loss.

- ★ Design female eyebrow hair restorations.
- ★ Identify special intra-operative techniques necessary for success in transplanting female patients and post-cosmetic surgery patients.
- ★ Differentiate proper female hairline design from that of men to achieve more natural results in these patients.

TARGET AUDIENCE

Medical doctors with intermediate level of skill in hair restoration surgery.

Hair's the Question

Sara Wasserbauer, MD Walnut Creek, California, USA drwasserbauer@californiahairsurgeon.com



After missing everyone at the Bahamas meeting due to my maternity leave, here are some fun questions on the embryology of the hair follicle. With recent developments about stem cell hair research in the news, these questions are even more timely. As an added bonus, you will be quizzing yourself on some questions that are also bound to be relevant on the ABHRS exam in January. Enjoy!

The embryology of the hair follicle

1. Which of the following is true about human hair follicles?
 - A. After birth, no new hair follicles form.
 - B. Human hair follicles multiply as the skin expands until this process stops just after puberty.
 - C. Puberty is the only time when new human hair follicles form (e.g., in the axillae, groin, beard area, etc.).
 - D. New human hair follicles can form anytime after birth if stimulated with the correct hormones.
2. Normal full-term newborns have which forms of hair?
 - A. Both vellus and lanugo hair but no terminal hairs
 - B. Lanugo hair only, which is shed and replaced by vellus hair
 - C. Vellus, terminal, and perhaps some lanugo hair
 - D. Vellus hair only
3. Hair follicle development in a human fetus is determined by many molecular and genetic mediators, including which of the following?
 - A. Noggin (for hair bud formation)
 - B. Sonic Hedgehog (for proliferation)
 - C. Ectodysplasin (for early hair follicle formation) and Homeobox genes (for patterning)
 - D. All of the above
4. Researchers at the University of Tokyo discovered that adding vitamin D to stem cells (media was growing dermal papilla cells) in mouse experiments resulted in which of the following?
 - A. It killed developing hair follicles.
 - B. It induced more hair follicles to form, especially if added in the earlier stages of development.
 - C. It induced more hair follicles to form, especially if added in the later stages of development.
 - D. It had no effect
5. The first step in hair generation in the developing fetus occurs with the formation of the "epithelial placode" (and subsequently the "primary hair germ") in the Pregerm stage at what time?
 - A. At about 35-36 weeks gestation
 - B. At about 19-20 weeks gestation when the gonadal tissues have formed
 - C. At the same time as the heart starts beating, roughly 6 weeks
 - D. At about 9-10 weeks gestation
6. Most of the process of fetal hair development seems to be completed by when?
 - A. Week 5
 - B. Week 36
 - C. Week 22
 - D. Week 15
7. How many hair follicles are estimated to be present on the human body at birth?
 - A. 1 million with 100,000 on the scalp
 - B. 5 million with 1 million of those on the scalp alone
 - C. 2 million total
 - D. 5 million with 100,000 on the scalp
8. Genetically speaking, how does a fetus receive its programming for hair loss?
 - A. Likely in a dominant fashion with incomplete penetrance and polygenic expression
 - B. In a recessive fashion
 - C. In an X-linked inheritance pattern
 - D. Through unknown genetic patterns of inheritance
9. What are the major embryological stages of the hair follicle, in order from earliest to latest?
 - A. Primordial hair, bulbous peg stage, hair peg stage, germ stage, pregerm stage
 - B. Pregerm stage, germ stage, hair peg stage, bulbous peg stage, primordial hair
 - C. Germ stage, primordial hair, hair peg stage, bulbous peg stage, pregerm stage
 - D. Germ stage, pregerm stage, primordial hair, bulbous peg stage, hair peg stage

Answers on next page ➡

Hair's the Question

from page 239

1. **A.** C only seems true since this is when vellus hairs in certain areas (like the beard, etc.) can be incited to grow terminal hairs.
2. **B.** Note that lanugo hair is shed and replaced by vellus hair, but it is not the only hair on the body at birth. Vellus hairs often replace the lanugo hairs and "increase tactile perception." Note also that about 10% of the hairs on the scalp are vellus.
3. **D.** Gotta' love these names!
4. **B.** My patients jump all over this stuff and now everyone is taking big doses of vitamin D without realizing that no new hair follicles form after birth! This information was recently touted all over the Internet as the latest breakthrough in hair research. View these articles online at: http://online.wsj.com/article/SB10000872396390443921504577643442954317340.html?mod=googlenews_wsj and http://news.yahoo.com/science-getting-closer-curing-baldness-032113927.html;_ylc=X3oDMTN2NGhscnFhBF9TAzc2NjUxNDkEYWN0A21haWxfY2IEY3QDYQRpbnRsA3VzBGxhbmcDZW4tVVMecGtnAzg2OWUyYmFmLmMjgtM2M0S05MDIjLWE1NjI2MGY2YWQ1MwRzZWMDbWI0X3NoYXJlBHNsawNtYWlsBHRlc3QDTjRVX05vcm1hbDM-;_ylv=3
Original articles can be found on Medline and pubmed.org.
5. **D.** On an interesting side note, hair development seems to start on the head and proceed downward over the rest of the body.

6. **C.** Week 22 is correct! This includes a large amount of lanugo hair that will be shed in stages from 32-36 weeks gestation up until the child is 3-4 months old.
7. **D.** I have found it cited in multiple sources although I have never been able to find evidence for how this number was derived in the medical literature. If anyone reading this ever finds the original article with the original data estimating these numbers, please send me an email at drwasserbauer@californiahairsurgeon.com.
8. **A.** The AR gene is the most highly implicated. It is NOT true that it is "inherited through the mother's side" and "skips a generation."
9. **B.** This is one of those questions that those of you studying for the ABHRS boards might want to know.

Bibliography

1. http://online.wsj.com/article/SB10000872396390443921504577643442954317340.html?mod=googlenews_wsj and http://news.yahoo.com/science-getting-closer-curing-baldness-032113927.html;_ylc=X3oDMTN2NGhscnFhBF9TAzc2NjUxNDkEYWN0A21haWxfY2IEY3QDYQRpbnRsA3VzBGxhbmcDZW4tVVMecGtnAzg2OWUyYmFmLmMjgtM2M0S05MDIjLWE1NjI2MGY2YWQ1MwRzZWMDbWI0X3NoYXJlBHNsawNtYWlsBHRlc3QDTjRVX05vcm1hbDM-;_ylv=3
2. Olsen, E. Disorders of Hair Growth; Diagnosis and Treatment. Chapter 1. In: W.P. Unger, et al., eds. *Hair Transplantation*, 5th Edition. ♦



WHERE THE PUNCH DOES THE WORK!

Cole Instrument punches are the sharpest in the world. The combination of Cole Punches and the Programmable Cole Isolation Device (PCID) recently allowed Dr. Cole to surpass the 5000 FUE graft limit in a single day!

STANDARD PUNCH



SERRATED PUNCH

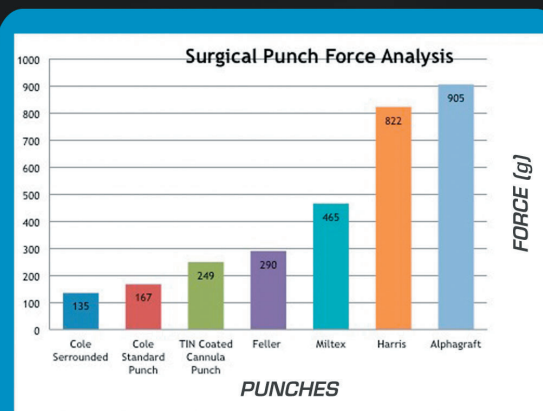


PCID



PHONE: 678-951-1255

WWW.COLEINSTRUMENTS.COM



In a study evaluating the force required for a 1 mm punch to cut through a silicone sheet, the Cole Punches required significantly less force to rupture the medium. Sharpness scales indirectly with push-out strength, such that the punch seen here with the lowest force possesses the greatest sharpness.

Surgical Assistants Corner

Practice makes excellence: the use of bovine skin and silicone scalps in training

Salome Vadachkoria, Hair Transplant Clinic Tallizi Tbilisi, Georgia salome@talizi.ge

“Practice makes excellence,” one of the doctors remarked at the coffee break after the busy day of his technician’s team training from Thailand. I remembered his words as an example of famous Thai wisdom. This is really the key to the training and development of the team that will provide high-quality and long-term assistance to the clinic with future growth goals and strategic development visions. The most valuable assets in this field still are human resources, and the continuous development and training of staff is very important for successful future growth.

Development and training are totally different issues. Training is the process by which people acquire capabilities to perform particular jobs, whereas development represents efforts to improve an employee’s abilities to handle a variety of assignments, develop effective communication skills, undertake a variety of responsibilities, and ensure quality judgment and decision making in critical situations. Both approaches are important for developing a high-quality hair transplantation team.

Effective Training Methods for Hair Transplant Technicians

The most important and critical steps in a hair transplantation procedure that are performed by surgical assistants are slivering, graft cutting, and implantation. Providing quality work in these areas requires months—and sometimes even years—of practice and experience.

After the theoretical lectures and presentations for newcomers is completed, I always start with one day of observation of a live surgery process because I find it to be very useful for developing a solid foundation of what is actually done in a hair restoration procedure. Because we cannot allow our trainees to practice on live surgeries, we simulate live surgeries following the steps below.

After the observational part is over, the practical training process starts. Slivering is the first step and we start the training of all team members at the same time. We use animal tissue (Black Bull skin) that is very similar to human skin. Dense, black hair and hard skin ensures a very effective process for training (Figures 1 and 2). During the practical training on the slivering, the best performers are identified and assigned to be the leaders of the team. They will be in charge of accomplishing more critical steps, such as the slivering process and distributing the slivers to remaining team members for further graft preparation (Figures 3, 4, and 5).



Figure 1. Bovine skin ready for slivering.



Figure 2. Slivering process under Meiji Stereo Microscope 10x and 20x magnification).

After the graft preparation process is performed well by trainees, we start the training of the implantation process on artificial scalp, which we have developed in our clinic (Figure 6). This artificial scalp was inspired by Dr. Jennifer Martinick’s wonderful technique that used transparent plastic boards for implantation together with Patrick Tafoya’s implantation silicone scalps. As you can see in the figures, artificial silicone scalp is transparent and recipient sites are colored indicating direction of the holes in different parts of the head, giving trainees the ability to see through the scalp and understand the direction of the holes at the same time. This feature gives trainees the opportunity to understand the direction of the recipient sites more easily and to acquire the needed skills of holding implantation forceps correctly and manipulation by the hands. Artificial transparent scalp also ensures that trainees understand and actually observe all incorrect effects of implantation on hair grafts, such as bending of hairs when grafts are grasped too high.

We continue training on artificial scalp and animal tissue during a 1-week period (every day for 6 hours), and if trainees show commitment in their efforts and quality improvement of their work, they are allowed to pass to the second stage of the training: participating in live surgeries under supervision of their teachers. In my experience, during a 1-month period of active work, assistants gain all the needed skills step-by-step and even reach a graft cutting speed of 150p/h on average providing high-quality work. This skill is continuously recorded and monitored by quality monitoring managers. Further expertise should always be gained during the working process, which may need several years of active working process.



Figure 3. Single sliver prepared under Meiji Stereo Microscope.



Figure 4. Slivers in Petri dish, ready for graft preparation.

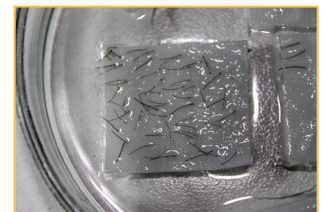


Figure 5. Single and Double FU grafts prepared under Meiji Stereo Microscope (10x and 20x magnification).

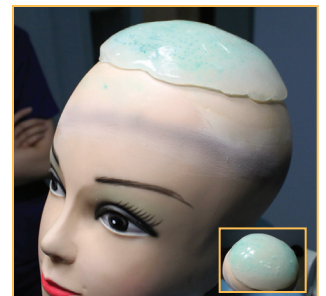


Figure 6. Transparent practicing silicone scalp.



FUE
2ND MEDITERRANEAN FUE WORKSHOP
Madrid 2013 May 24 - 26

España

ISHRS Regional Workshop
Hosted by Dr. Lorenzo and Dr. Alex Ginzburg

2nd Mediterranean FUE WORKSHOP

Learning Objectives

- FUE Surgical Technique:
 - Compare and contrast different instruments and techniques, manual and motorized, for scoring the scalp in the FUE technique.
 - Describe individual technique of each faculty physician.
 - Differentiate methods and tools to "delivery" the follicular unit, after the scoring of the scalp.
 - Appreciate the application of intraoperative special maneuvers, necessary to treat difficult patients by FUE technique.

Faculty

Erdogan · Feriduni · Devroye · Harris · Ginzburg · Lorenzo

6 doctors, 6 ways to perform the same

- Sitting and prone positions
- Manual and motorized devices
- One and two step extraction technique
- Robotics

This 3-day workshop will focus on the specialized donor harvesting technique of follicular unit extraction (FUE). Nine live surgical procedures (7500 FU's) will be offered along with implantation with the implanter pen technique.

Several FUE techniques, methodologies and instruments will be discussed including both manual and motorized FUE.

Register for Workshop

<http://www.2ndmediterraneanfueworkshop.com>

INTERNATIONAL SOCIETY OF
ISHRS
HAIR RESTORATION SURGERY

Clinic Sponsor

Practice makes excellence

from page 241

Need for Development

After the training stage of assistants is over, the biggest challenge is how to retain and grow valuable employees. The labor market for experienced surgical assistants is very scarce and turnover and head hunting of the employees is very common in this field (there are lots of cases when juniors in one place become seniors in another place). I am sure that everyone has experienced the disappointment evoked by a leaving worker, who has been trained for years. In order to avoid such unpleasant situations, which poses useless training expenses to the clinic, employee education and development programs should be established. Everyone should have an equal chance to increase their knowledge and experience and improve their career, and benefits should be directly and clearly tied to employee performance. These benefits can include such things as growth opportunity within the organization, flex work times for mothers, financing of vacations or conferences, or employee of the month awards, to name a few. Often, development possibilities and benefit packages that are tied to performance motivate employees to improve their work quality and stay loyal to their organization.

A note from Dr. Farjo: I asked these questions of Salome. Her responses are below:

"Do the grafts that are produced from bovine skin have the same "feel" to them? From the photos it looks like there is very little fat and connective tissue, so are the grafts more slippery? Also are the grafts grouped into follicular units like human skin?"

Salome's response: The bovine skin actually is little different from human skin. The dermis connective tissue part is very thick and firm and subcutaneous tissue seems to be deeper below the hair bulbs, so grafts are a little bit different, with no yellow tissue surrounding the bulbs. There are single-hair grafts but also multiple-hair grafts. Figure 5 shows mostly 1-hair grafts and just several 2-hair grafts prepared by one of our trainees. Typically, in the beginning, newcomers start cutting with mostly 1-hair grafts until they gain the skills and understanding necessary to not divide follicular units into single-hair grafts. That's why the photo shows mostly 1-hair grafts. If enough connective tissue is left surrounding the grafts, they do not appear to be slippery and do not pose difficulties during the implantation process. ♦

Meetings and Studies

David Perez-Meza, MD *Mexico City, Mexico* DrDavidPM@permanenthairsolutions.com



With the usual camaraderie and hospitality, our Brazilian hair restoration colleagues organized the 5th Annual Brazilian meeting July 5-6, 2012, in São Paulo, Brazil. More than 70 physicians participated at the meeting that included many interesting topics related to hair loss (male and female) and hair restoration techniques. Congratulations to our Brazilian colleagues for the success of the meeting that showed a mature and strong society and its leadership in hair restoration in Brazil.

Our second review covers the donor harvesting workshop using the FUE technique that was held August 4-5 in Denver, Colorado. Forty-five physicians attended the workshop, which was hosted by the ISHRS and Dr. James Harris. Donor harvesting with FUE technique has received greater attention from and popularity among hair restoration surgeons. Different options and devices to help obtain hair grafts during donor harvesting with the FUE technique were demonstrated, and the pros, cons, side effects, and complications relating to the different devices were presented. Participants had hands-on opportunity to use the devices on synthetic models. Congratulations to Dr. James Harris and the faculty for running a successful meeting that helped to clarify many issues related to FUE.

Review of the 5th Annual Brazilian Workshop of Hair Restoration: July 6-7, 2012 • São Paulo, Brazil

Friday/July 6, 2012

Antonio Ruston, MD *São Paulo, Brazil* tony@ruston.com.br

Dr. Fernando Bastos (President) presided over the opening ceremony. The first session, moderated by Dr. Marcelo Gandelman, reviewed clinical treatments and new instruments. Dr. Francisco Le Voci talked about what is new in hair loss clinical treatments and the side effects. Dr. Luiz Pimentel spoke on some innovations in macroscopic analysis to ensure the density symmetry. Dr. Marcelo Gandelman presented a study by Dr. Jerry Cooley about regeneration and genetics, while Dr. Henrique Radwanski talked about the challenges of learning and practicing hair transplant surgery. Dr. Mauro Speranzini showed new instruments in hair restoration for the present and future.

The second session started with Dr. Tony Ruston and Dr. Marcio Crisostomo. They spoke about the hot and controversial topic—FUE vs. FUT—including the pros and cons. Dr. Sandro Salanitri talked about tissue expansion and Dr. Radwanski showed his approach to facelift complications treated with hair transplantation.

Dr. Arthur Tykocinski gave a presentation about dense packing vs. regular density, and Dr. Carlos Uebel showed his current routine in Hair Transplant surgery. Dr. Gandelman discussed eyebrow, eyelid, and body hair transplants. Dr. Luis Trivellini showed a very interesting topic using his instrument for FUE by suction. Dr. Erik Nery talked about new ideas for FUT. Dr. Alan Wells talked about eyelash transplants. In the end, Dr. Jose Muricy talked about complications in hair restoration, noting how to avoid them and how to treat them.

Saturday/July 7, 2012

Marcelo Gandelman, MD *São Paulo, Brazil* marcelo@gandelman.com

Our eye-opener was by Dr. Carlos Eduardo Leão the always elegant and well-spoken Coordinator of the surgical techniques section.

Dr. Leão welcomed Dr. Fabio Henrique Zamprogno Mendes, who conducted a piece about operating room and staff training. Dr. Clerisvaldo Almeida shared his considerable know-how with hair transplantation in the crown, offering details about graft insertion using the hair pore as a guide and showing very interesting results. Our dynamic president, Dr. Fernando Basto, the renowned expert in irregular and sinuous anterior hairline, gave us his tips and pearls on the subject.



Faculty (left to right): Arthur Tykocinski, Sara Kotai, Marcelo Gandelman, Jose Muricy, Fernando Basto, Tony Ruston, and Henrique Radwanski.

Everyone applauded our cherished Dr. Maria Angelica Muricy Sanseverino when she addressed the subject of harvesting and suturing the donor area followed by surgical treatment of cicatricial alopecia. Dr. Carlos Eduardo Leão presented the hot subject of post-operative complications in the surgical treatment. Next, Dr. Ricardo Lemos gave a splendid lecture about his experience in hair transplantation of long hairs with no use of vasoconstrictor drugs.

Assessing the patient prior to a surgical referral, evaluating to determine the risk to the patient of the proposed procedure, and minimizing these risks was the theme of Dr. Marcos Teixeira's speech. Dr. Jose Candido Muricy shared his impressive vast experience in dealing with young patients. Dr. Fernando Basto detailed his advanced approach to female hair transplantation, setting guidelines of his own classification and showing a video demonstrating how to do it.

Dr. Alonso Aymore presented how to manage the immediate post-operative period of surgery followed by eyebrow reconstruction on scalp victims of motor boat axis, a typical accident in the Amazon River region. He noted how this gives the patients a better outlook and helps to change their lives. Next, Dr. Henrique Radwanski reported his personal experience bringing together surgeons and governmental bodies in a joint effort to care for scalp victims of motorboat axis.

Dr. David Perez-Meza sent a didactic presentation outlining

Meeting reviews

from page 243

the state-of-the-art advantages in utilizing storage solutions and additives affecting the growth and survival of follicular grafts including his GPS (Graft Production Survival) concept. Dr. Fernando Basto showed us his video demonstrating how to do a natural looking frontal line.

The controversial topic FUT versus FUE was brought to us from Guadalajara by a polemic presentation given by Dr. Arturo Sandoval.

Dr. Leão presented a video that expanded our understanding about the frontal line with a particular temporal inflection. Dr. Arthur Tykocinski offered his pioneer approach to mega sessions. Dr. Antonio Ruston presented a video on slivering and obtaining follicular units.

After a participative debate involving all members identifying the procedures and strategies discussed in our workshop, we left knowing that our Brazilian Society will remain strong and lead the field of hair restoration in Brazil. ♦

Review of FUE Palooza: Denver, Colorado • August 4-5, 2012

Saturday/August 4, 2012

Scott Boden, MD Wetherfield, Connecticut, USA

drboden@hairtransplant.com

The 2012 FUE Palooza workshop was well attended and a great success. Sponsored by Dr. James Harris and the ISHRS, 45 physicians, including 22 international colleagues, learned about the latest techniques in donor harvesting using Follicular Unit Extraction (FUE).

The intent of the meeting was to provide an overview of FUE, including the different devices used and the procedures, methods, and techniques employed, and to discuss the advantages and disadvantages of each. Morning lectures were followed by afternoon live surgical procedures in which participants had the opportunity for practical hands-on experience with several FUE devices.

Sharp-punch FUE devices were presented by Drs. Ken Williams, Robert True, and John Cole. Dr. True demonstrated his motorized system with variable punch size, variable speed control, and sharp punches ("the sharper the better"), and he emphasized the importance of careful microscopic processing of extracted grafts as well as proper depth control. Sharp punch dissection below the infundibulum, at the level of the bulb splay, or between 3.5-4.0mm may be the ideal pre-set depth and should be individually determined.

Dr. Cole prefers to use a sharp punch and illustrated that with a dull punch greater tangential force is generated and increased depth is required. Numerous variables affecting FUE success include depth of follicle, follicle splay, strength of outer root sheath's attachment to the inner root sheath, and attachment of the follicle to the subcutaneous adipose tissue. Dr. Cole has developed a tool that can incorporate oscillation with rotational extraction for select patient use.

Even distribution of follicular extraction and thus evenly distributing donor density reduction was mentioned by several speakers. Adjusting speed of rotation and angle entry, and carefully evaluating graft burial, transection, and the quality of grafts periodically during extraction are essential to FUE success.

All faculty physicians agreed that it is important to know many different techniques and to be able to change and adapt to individual patients. The overall goal is to obtain excellent grafts with minimal transection.

It was also emphasized that the procedure of FUE is a surgical procedure that involves cutting the skin, and as such it is not a procedure that can be turned over to technicians. It was emphasized that if this occurs, it is likely in violation of state medical laws.

In the afternoon, participants had the opportunity to work with several patients and perform extraction of follicular units using various devices. With the ARTAS robotic system, participants learned the importance of preparing the patient in a prone position and using a skin tensing device for best preparation of the donor area. Physicians were able to set the density and depth of extractions, and review the quality of the grafts obtained as the robot continually adjusted for optimal angle of extraction. The SAFE System, a motorized, handheld, blunt punch extractor system, was used to effectively extract intact follicular units.

One room was devoted to practicing extraction on synthetic models. Both sharp and dull punch systems were compared side by side. With both techniques, it is critical to first engage the skin and get the hair follicle in "the center of the bull's-eye" prior to advancing the punch. This step ensures limited transection. The models were arranged so that participants could also attempt both prone and supine extractions.

Ultimately, each physician should be familiar with several different techniques and be comfortable with both sharp and dull dissection and determine for themselves their most effective tools for successful FUE.

Sunday/August 4, 2012

Ken Williams, MD Irvine, California, USA drkenwilliams@gmail.com

Sunday morning's lectures focused on the disadvantages and advantages of the highlighted FUE devices.

SAFE System

Dr. Yates delineated the strengths of the SAFE System, which included a "dull" punch, control of rotational speed, punch size variability, and ability to harvest all ethnic hair types. The SAFE System precipitated a spirited debate on the sharp versus dull punch controversy. Dr. Yates expressed concerns about ergonomics and the weight of the hand motor piece causing musculoskeletal discomfort and fatigue of the hands and arms. It should be noted this problem is not unique to the SAFE sys-

tem, and outside of the ARTAS system is a serious issue to be concerned with all FUE devices. Dr. Yates also addressed the phenomenon of “capping” and stripping of the follicular unit as a consequence of FUE. He also highlighted and briefly lectured on ethnic hair transplantation and noted that he felt the SAFE device was adequate for ethnic hair surgery. Dr. Yates said the acquisition cost of the SAFE device is approximately \$3,000.

ARTAS System

Dr. Jim Harris outlined what he believed were the clear advantages of the “FUE robot.” Those advantages included shorter time for proficiency compared to the longer learning curve of the other motorized and automated FUE devices on the market. Dr. Harris also iterated another advantage of performing FUE with the ARTAS system: traditional motorized FUE devices require a long learning curve, a high degree of hand-eye coordination, and surgical skills whereas ARTAS does not. He expressed the high rate of harvesting, low follicular transection rates, and excellent clinical outcomes.

Dr. Harris spoke of the potential disadvantages of the ARTAS Robotic device, which included the required 10×10-foot room space, the expensive acquisition cost of the unit (\$250,000.00), the mandatory annual maintenance cost of \$20,000, and the \$1.00 per graft cost collected by the ARTAS company. The scalp tensioning device received numerous positive comments from the attendees who inquired if this single item could be purchased separately. Dr. Harris described the details of the science and design of the ARTAS, and most attendees were impressed with the clinical trials and outcomes completed in conjunction with another ISHRS physician in attendance, Dr. Sara Wasserbauer. Dr. Cole commented that a sharp punch may improve the forces and trauma of the follicle and surrounding tissues.

True Motorized Sharp FUE Device

Dr. Robert True in “true” form gave an academically-oriented lecture that was well organized and received by the conference attendees. His lecture outlined the need with FUE devices with sharp punches to control the depth of penetration. He demonstrated his device depth-limiting adaptor along with photo documentation of several excellent clinical outcomes using his FUE device. One of the stated primary advantages of his unit was the simple construction method and the acquisition cost of the device of under \$3,000. Compared with other FUE harvesting techniques, he stated he does not use tumescence or a tensioning device for graft harvesting. A spontaneous conversation occurred in regards to body hair transplantation (BHT) with the resulting consensus that BHT outside of harvesting from the neck regions did not result in the consistent outcomes that harvesting from the

safe zone in the posterior donor site traditionally yielded. Drs. Harris, True, and Cole expressed their personal experiences that BHT had mixed results and the preference not to harvest from the body because of the poor long-term outcomes and growth of body hair.

NeoGraft System

This author began his lecture on the need for personal and professional balance of lifestyle and professional practice. With the professional experience as a primary care physician, the author made a point that a balanced approach and healthy lifestyle is necessary for professional practice. An emphasis was placed that longevity in medical practice is dependent on finding personal time in sport or recreational activities that reduce stress and bring joy to the physician’s life.

An emphasis was then made that FUE surgery was dependent on slowing or stopping the progressive nature of hair loss by scientifically proven medical therapies. To make the point, personal pictures at 21 and 47 years of age were shown precipitating healthy laughter and joking by the conference attendees. Musculoskeletal and repetitive motions disorders were also addressed as a serious career ending disorder for surgeons who use FUE devices (ARTAS excluded) if certain precautions are not followed. The practice and knowledge of ergonomics is necessary because of the long surgery intra-operative times and fixed position of the body during graft harvesting. Also discussed was how NeoGraft’s contra-angle hand-held device reduced such orthopedic and neurological disorders.

The author also criticized the marketing of FUE as a “turn-key” procedure. A much heated audience discussion against the marketing of NeoGraft followed, and consensus was reached that hair restoration surgery should never be advanced as a technician

directed and performed procedure. Warnings of incarceration and criminal or civil actions were given to surgeons who do not direct and perform hair surgery, allow technicians to primarily perform FUE surgery, and do not direct hair transplant surgery.

Disadvantages of the NeoGraft device included the difficult use and impractical utilization of the graft implanters, the high selling price (MSRP \$89,000), and the potential for the drying out of grafts in the holding chamber if regular misting and hydration protocols during harvesting were not followed. Other criticisms included the difficulty in obtaining device support and supplies. The advantages included the one-step vacuum extraction of the grafts that reduced graft damage and handling. Buried grafts were addressed as a consequence of FUE. The author gave insightful tips on treating grafts that were buried by rotating sharp and dull punches.



Figure 1. Dr. Robert True demonstrating FUE motorized device.



Figure 2. Dr. Ken Williams demonstrating FUE device and technique.



Figure 3. Drs. Robert True, Jim Harris (host), and Ken Williams.

Meeting reviews

from page 245

Feller FUE Device

Dr. John Cole gave an exemplary description of the physics of FUE and how punch speed, torque, and design has a great impact on successful tissue dissection and reducing follicle transection rates. The lecture was the first time a detailed discussion of the dynamics of physics played in the design of FUE devices and punches. During his lecture he addressed the concept of limited punch penetration as an essential part of the successful harvest of grafts.

Live Surgical Demonstration

Bosley Office

Robert True, MD: True FUE device; John Cole, MD: Feller Device and other devices; Ken Williams, DO: Cole, Alphagraft, and SAFE FUE systems; Ken Washenik, MD: Surgical Program Coordinator

In the afternoon, the second surgical group of attendees visited the demonstration suites of Drs. True, Cole, and Williams. All physicians that held a U.S. license in one state were allowed the opportunity of hands-on use of all devices. Dr. True demonstrated his sharp hand-held motorized unit. Dr. Williams was unfortunately unable to demonstrate the NeoGraft unit as an electrical motor issue disabled the device. As an alternative, Dr. Williams used Cole's FUE device, SAFE, and AlphaGraft FUE devices as demonstration models. Dr. Cole demonstrated and taught the Feller hand-held FUE device and his own FUE device, protocols, and methodologies. ♦



**State-of-the-art
instrumentation for hair
restoration surgery!**

For more information, contact:

**21 Cook Avenue
Madison, New Jersey 07940 USA**

Phone: 800-218-9082 • 973-593-9222

Fax: 973-593-9277

E-mail: cellis@nac.net

www.ellisinstruments.com

Get Your Patient's Hair Score With HairCheck

**Revolutionary
NEW
Service!**

HairCheck® is based on published hair bundle cross-section technology. It displays your patient's combined hair density and diameter as a single score (from 1-100) on an LED screen. Discuss the score with your patient and compare it to the previous score. A change in the score indicates a change in density and/or diameter — the anatomic hallmarks of hair loss and growth. Photographs are imprecise. Hair counts measure density alone. HairCheck® is the fast and easy alternative. Not a single hair is cut. Your technicians can easily learn the technique with the enclosed instructional DVD. With HairCheck®, you'll be able to diagnose and treat thinning, shedding and breakage with confidence, like never before.



If It Can't Be Measured, It Can't Be Managed!

***HairCheck Is The Only Meaningful Way
To Measure Hair And Will Forever Change
The Way You Think About Hair Loss***

HAIRCHECK

HairCheck® is a mechanical hair-measuring device. The medical diagnosis and management of hair loss requires a physician's interpretation of the data.



1-800-233-7453 www.HairCheck.com

Letters to the Editors

Re: Dr. Michael Beehner's "paired" grafts article

Steven C. Chang, MD Newport Beach, California, USA

newhair@hairtransplant.com

I have read with great interest the article by Dr. Beehner, "Do 'paired' grafts survive as well as intact FU grafts?" (*Hair Transplant Forum Int'l.* 2012; 22(2):48). Dr. Beehner's conclusion is that the difference between paired grafts and intact FUs, 2-hair paired vs. intact, is 25% (58% vs. 83%), 3-hair paired vs. 3-hair intact is 6% (85.7% vs. 92%).

Dr. Beehner has published many useful reports, such as Thin graft vs. Chubby graft, that have a great impact on our hair transplant surgery. I really appreciate his time and effort.

Based on his data, I have one more observation that Dr. Beehner did not mention in his report: The yield rate of the 3-hair group is significantly better than the 2-hair group, either paired (1 hair +2 hair, 85.7%, vs. 1 hair + 1 hair, 55%) or intact (3 hair, 92%, vs. 2 hair, 76%).

Discussion

My explanation is that the 3-hair group has more tissue around it than the 2-hair group. Under this assumption, more surrounding tissue will have a better yield rate; thus, we can explain easily from what Dr. Beehner is trying to point out: "Interesting enough, the 1+2 group of paired grafts had a higher survival than 2-hair FUs, 85.7% compared with 76% respectively." Since a 1+2 (1-hair SFU+2-hair SFU) group of paired units absolutely has more tissue than a single 2-hair SFU (single follicular unit), it should have a higher yield rate. To verify this point of view, we should review all the study results from Seager 1997, Beehner 1998, Beehner 1999, Reed 1998 and 2000-2001, and Raposio's 2000 study (see below chart). Chubby grafts have a much better yield rate. The difference is from 15-33% without any exception, because a chubby graft has more tissue around it than a skinny one does. From here, we can draw this conclusion: For up to BFU (bi-follicular unit) size, the grafts with more tissue around the hair have better growth rates. (A 3-hair intact graft is a BFU because it contains two follicular units, one is a 2-hair SFU, the other is a 1-hair SFU.) Thus, BFUs have better yields than SFUs.

	% Growth Rate		Decrease in % Growth Rate
	Chubby Graft	Skinny Graft	
Seager, 1997	113%	89%	-21%
Beehner, 1998	133%	103%	-22%
Beehner, 1999-2001	86%	57%	-33%
Reed, 1998, 2000-2001	104%	88%, 78%	-15% to -25%
Raposio, 2000	98%	82%	-16%

To measure the surgery result, we need to know both quantity (hair yield number) and quality (diameter of hair). Past reports only mentioned hair quantity, I have never read any report about the change in quality of the hair after transplantation.

I have done a study to compare hair diameter 10 years after surgery. On one side, I used all SFUs (chubby grafts), and the

other I used all BFUs. I compared both side to the patient's own donor hair diameter 10 years later. The results are below.

date	Recipient Site (hair diameter in micron)		Donor Site (hair diameter in micron)		
	Bi Follicular Unit	Single Follicular Unit	Left temporal	Mid	Right temporal
	Average 58.38	Average 52.2	57.7	59	56.25
			Average 57.65		

The control group is the donor hair. Ten years after the hair transplantation, the diameter of the hair of BFUs is very close to the donor site hair (58.38 vs. 57.65 micron). But single FU hair is 10% smaller than donor hair (52.2 vs. 57.65). Our SFUs are all chubby grafts. I am sure that if we used all skinny SFUs, the result would be much worse than 52.2 micron.

We found that the hair grown from BFUs keeps the same size as donor hair but the diameter of single FUs is 10% less. This means the size of hair is 24% smaller for a single FU hair ($26.1 * 26.1 * \pi / 29.18 * 29.19 * \pi = 76\%$).

Comment on Paired Grafts

In addition to paired grafts having a reduced yield rate, from the view of visual effect, the impact of paired grafts is almost none (Figure 1).

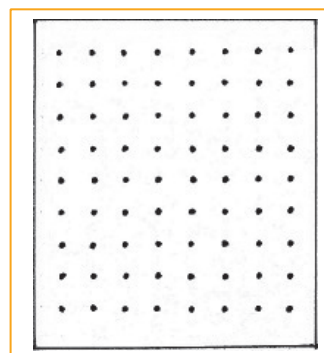


Figure 1. Single grafts.

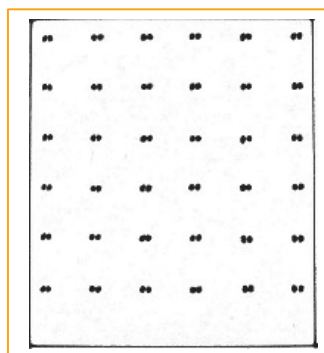


Figure 2. Paired grafts.

Both figures have 72 dots in the same area. This means they have the same density, but Figure 1 seems denser than Figure 2. The reason is the space among the dots is much smaller in Figure 1. With paired grafts just like in Figure 2, the hairs stick together without any space between them. So this shows the difference between single and paired grafts.

Now take a look at a real scalp (Figure 3). If you have 1-hair FUs left, do you prefer to pair them with an existing hair or insert them into the empty space among the hair? You can imagine which one has the better result.

When you pair a 1-hair SFU into another 1- or 2-hair SFU, it will become a 2- or 3-hair SFU, with all the hair sticking together but still with the same size empty space. Even though the density is increased, there is no other visual effect. But if you insert a graft into the center of an empty space amongst the hair, you can see the empty space is reduced right away. Two SFUs separated have a better result than pairing them together.

Conclusion

1. Paired grafts not only have lower yield rates but they also

Letters to the Editors

from page 247

don't help the visual effect. It is obviously not in the patient's best interest.

2. BFUs have better results than SFUs from either a quantity or quality point of view.
3. In Dr. Beehner's report, both of his patients' data show 12-14 month yield rates less than 5.5-7 months without any exception. If the result is reversed, then it is much easier to explain. Now how can we find a reason for it? We always believe that the transplanted hair will grow for a long time. What would be the result at 18 and 24 months? A follow-up study would be very important and interesting.

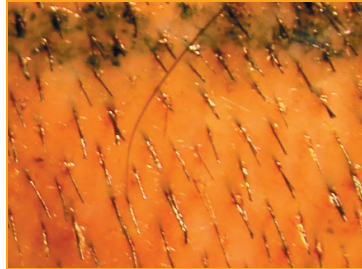


Figure 3. Example of real scalp hair distribution.

Editor's note: Dr. Chang brings up and supports with new data an old topic that has never been resolved: Chubby grafts, according to most studies, appear to grow more hair and, Dr. Chang's data would suggest, larger fiber diameter. Chubby grafts have largely died out, victims to two phenomena. The first is that misuse of the multi-follicular unit graft produces a visibly suboptimal result, whereas the adverse outcome of the single follicular unit graft, a "skinny graft," is invisible; that is, the failure of and/or miniaturized growth is more difficult to recognize. The second reason is marketing and the associated consumer sentiment that rendered the larger graft as "Old School."

Measuring hair fiber diameter is a subject that warrants its own discussion. The micrometer, for instance, has a problem measuring the two axes of the oval shape of most hair. Reasons supporting why the micrometer is still a good tool for this assessment is beyond the scope of this comment. Although the HairCheck is a good substitute in many circumstances, it would be an advancement of our specialty if the single fiber could be measured and accurately correlated with hair mass. —WR

A note from Dr. Michael Beehner: I was fascinated by Dr. Chang's proposition that the final diameter of hairs within a double follicular unit graft is somewhat greater than those in a "single" FU graft. I couldn't tell from Dr. Chang's comments whether his diameter study was done on one patient or more. Obviously, the fewer patients in a study, the greater is the need to corroborate the results with additional patients or studies.

With regard to the observation that the sheer amount of tissue "mass" within a recipient site favors a higher survival rate, I hadn't actually thought of it before in that strict context, but perhaps it is true. Having used multi-follicular unit (MFU) grafts within the central areas of many of my patients for the past 20 years, I have always been impressed with the fact that these grafts always reliably grow out earlier than FU grafts and with apparent full survival just from observation. In the studies I have conducted on survival of the hairs within MFU grafts of 4-6 hairs, the results have usually been very close to 100%. I have always attributed this high rate of survival to the "buffering"

safety provided by the extra tissue within the graft with regard to minimizing trauma in the placing step and also to the fact that hidden telogen hairs are more likely to be included within such grafts and later blossom out and contribute to the number of hairs counted later on. So the fascinating question he raises is the following: Is the mass of the amount of tissue within a recipient site, regardless of whether it is paired or not, more important than the "intactness" of the follicles/grfts within that site?

I agree with Dr. Chang that it would be very interesting to study the "quality" of the hairs grown out from various size grafts, especially with regard to FU grafts that are trimmed either chubby, medium, or skeletonized. In my "chubby vs. skinny" study, which I modeled somewhat after Dr. Seager's similar study, my recollection is that the hairs were almost all relatively "terminal" in appearance, although I certainly did not perform hair diameter measurements.

The one area in which I slightly disagree with Dr. Chang is on the visual effect of 1-hair grafts scattered around as compared with the same number of hairs paired up and arising from half that number of recipient sites. When viewing short, clipped hair stubs as in his photo, it is true that two hairs can almost appear as one and the spaces are very noticeable. But I find that groups of hairs exiting together from the same recipient site, whether it be in pairs of 2 or up to 6, block light much better when the hair grows out than if the same number of hairs was evenly distributed with smaller hair numbers per site. As the hairs grow out, they diverge slightly as they elongate and there is an innate light-blocking quality to such a group of hairs when they emerge together. This is most especially true when it applies to groups of 4 or more hairs.

In closing, I would like to add my conjecture as to why the hair count after a year is sometimes less than one done several months after the study. One possible explanation would be that, as the months pass by, the individual follicles randomize into an asynchronous distribution of those in the anagen phase and those in telogen. Perhaps in the physical tissue climate immediately following a transplant, some follicles are more susceptible to converting to the telogen phase than they would otherwise. ♦



Re: Body dysmorphic disorder

Greg Williams, FRCS (Plast), Alex Clarke, D. Psych London, UK
dr.greg@farjo.com

We read with great interest Dr. Rajput's article titled "Evaluation of body dysmorphic disorder in hair loss patients and benefit after hair restoration" in the July/August 2012 edition of the Forum and your comments in the same edition.

With regards to Dr. Rajput's article, we commend his initiative in exploring this very important area of our practice but would like to make the following comments.

Psychiatrists describe Body Dysmorphic Disorder (BDD) as extreme pre-occupation with a particular feature, in the absence of a severe disfigurement, which has a significant impact on psychological well-being. This is included in DSM-IV as a discrete diagnostic category, with established criteria, often co-morbid with Obsessive Compulsive Disorder (OCD).

Many psychologists take a different conceptual position, suggesting that BDD is the extreme manifestation of appearance related anxiety that marks one end of a continuum with normative discontent at the opposite pole. Some of those with extreme

appearance anxiety will have a disfiguring condition and others may be concerned with a very minor condition; indeed there is no relationship between severity and psychological distress. In our clinical experience, practitioners in the cosmetic surgery and dermatology settings will see some patients who have BDD (prevalence has been suggested as 1-2% in the general population but much higher in these settings) but an even greater number of people for whom their appearance fails to meet an ideal and who are strongly motivated to change it. There is certainly evidence of preoccupation and avoidance of certain social activities—but this group is essentially socially anxious or lacking in self-confidence rather than body dysmorphic.

We would suggest that your comments in the co-editors messages reflect your experience largely with this latter group. Indeed, if properly supported, with real understanding (and if necessary modification of) their expectations, very anxious patients commonly report good outcomes as you have suggested. However, those with BDD—the extreme group—are far less likely to respond favourably to surgery. This is the group who undergo multiple procedures without achieving their goals and for whom preoccupation increases rather than reduces over the course of their treatment.

For this reason the UK National Institute for Clinical Excellence (NICE) recommends that patients with BDD be screened out of surgery and referred for psychological assessment.¹

Whilst all hair transplant practitioners will acknowledge that there is a spectrum of anxiety and fixation in patients who are losing their hair, we maintain that a small subset of these patients will have BDD. Essentially there is no reason why we would not expect to be seeing a similar group of patients across all settings aimed at modifying appearance. It would be beyond the expertise of most hair transplant surgeons to be able to discriminate between those with extreme anxiety/fixation and those with BDD and we would therefore strongly recommend that the experience of a psychologist is sought for all patients who report an excessive preoccupation with their appearance which restricts their ability to live a normal life. They will typically report a strong belief that they are “ugly,” seek constant reassurance from other people, and spend excessive time in front of the mirror checking their appearance (see NICE for specific questions). This information is very easy to elicit as part of a clinical assessment.

There is no need to include complex psychometric tools at the screening stage, although for those who are interested in using a standardised measure for clinical or research purposes, we would recommend the COPS cosmetic screening questionnaire² as an alternative to Dr. Rajput's non-standardised measures. A thorough clinical assessment (as above) is enough to highlight concern and trigger onward referral to a psychologist. At this stage the task is one of screening for other problems not making a diagnosis, so being over inclusive in who is referred is not a problem.

Recommending to a patient that they might benefit from seeing a psychologist needs to be done in a sensitive and supportive manner and does open the possibility of the patient seeking an alternative surgeon who might be willing to offer them the surgery they are requesting without this stipulation. However, overanxious patients, including those with or without BDD, often find the input of a psychologist beneficial in identifying the reasons for their excessive concerns, discussing additional strategies for management and setting out very clear goals and expectations of surgery. In the UK, this is now recommended as good practice and helps to frame the provider as offering the highest standard of care.

Establishing a relationship with one or more psychologists who have expertise and experience in this field is essential so that the hair transplant surgeon can confidently directly refer the small

number of patients about whom they have concerns. Avoiding operating on patients who do in fact have BDD will save the surgeon a great deal of grief and, in fact, is the appropriate management of the patient. Recommended treatment for BDD is via cognitive behaviour therapy for mild BDD with selective serotonin reuptake inhibitors (SSRIs) for moderate to severe BDD characterised by obsessional features. We therefore respectfully disagree with your suggestion that there is no benefit to labelling someone with BDD and thank you for raising this controversy. We believe further research is required looking at what motivates some patients with hair loss to undergo surgery, how satisfied they are post-operatively and more structured methods to identify those patients who might not be satisfied post-operatively, including those with BDD, prior to offering surgery. We look forward to hearing the views of other readers of the *Forum*.

References

1. Obsessive-compulsive disorder: core interventions in the treatment of obsessive-compulsive disorder and body dysmorphic disorder. NICE: 2005. <http://www.nice.org.uk/nicemedia/live/10976/29947/29947.pdf>.
2. Veale, D., et al. Development of a cosmetic screening questionnaire (COPS) for screening body dysmorphic disorder. *JPRAS*. 2012; 65(4):530-532.

Editor's note: I would like to thank Drs. Williams and Clarke for reading, reflecting upon, and responding to my thoughts regarding our patients' emotions concerning their hair loss. (Dr. Williams was gracious in seeking me out in the Bahamas to “apologize” in advance for his differing opinion; none is needed, of course, but what a nice man to be so courteous!) I think our positions are not that far apart. I believe our differences lie in our respectively presumed frequency of BDD. His perception is that “...prevalence has been suggested as 1-2% in the general population but much higher in...[our hair transplantation surgery] settings.” My perception, on the other hand, is that the frequency is at least two or three decimal points to the left of this percentage. If I agreed with his frequency, I would be in complete agreement with his proposals. Actually, I doubt that I could feel fulfilled practicing hair transplantation if it made so many people unhappy. He characterizes this percentage of several percent as patients having a “preoccupation...[regarding their hair that] increases rather than reduces over the course of their treatment.” I like this concrete definition as opposed to the others alluded to that deal with abstract levels of anxiety or obsession. Using this definition, I may be seeing my first such patient as I write, although I am still confident that an incomplete sense of satisfaction will be our ultimate outcome. This frequency is literally one in thousands. With this frequency I have trouble losing sleep over my deficiencies in being able to “discriminate between those with extreme anxiety/fixation and those with BDD.” I think good documentation and review with the patient of the surgical plan both pre-operatively and post-operatively, good photos, and emphasizing a relationship that is based upon a partnership in striving for what the patient has defined as goals are crucial in keeping the demons of the DSM-IV at bay.

I again thank the doctors for expressing their opinions regarding BDD in the hair loss patient. I am sure their opinions are shared by many readers. As I mentioned in my editorial this month, it is the sharing of ideas that helps us all grow in our mastery of this wonderful specialty. —WR♦

Classified Ads

Seeking Surgical Technicians/Medical Assistants

Ziering Medical is seeking experienced surgical technicians/medical assistants to join our team.

Multiple locations. Excellent working environment, compensation, salary and benefits.

Willingness to travel a plus. Searching for Full Time/Part Time/Independent Contractors.

Positions available immediately in Newport Beach and Beverly Hills, CA.

Please e-mail your résumé to hairrestorationjobs@gmail.com

Seeking Experienced Registered Nurse

Ziering Medical is seeking experienced Registered Nurses to join our team.

Multiple locations. Excellent working environment, compensation, salary and benefits.

Willingness to travel a plus. Full Time position open immediately in Beverly Hills/Newport Beach.

Must be professional, provide compassionate patient care and have excellent time management skills.

Please e-mail your résumé to hairrestorationjobs@gmail.com.

Seeking Experienced Hair Transplant Technician

Experienced hair transplant technician needed at Anti-Aging & Aesthetic Medical Center near Raleigh, NC.

Flexible hours. Great working environment and benefits. Great pay. Moving Expenses.

All inquiries are completely confidential.

Please e-mail your résumé to azacco@earthlink.net.

To Place a Classified Ad

To place a Classified Ad in the *Forum*, simply e-mail cduckler@ishrs.org.

In your email, please include the text of what you'd like your ad to read. Classified Ads run \$85 per insertion for up to 70 words.

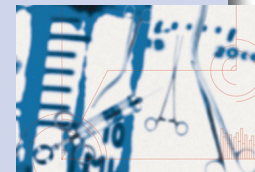
Our rate sheet can be found at the following link: <http://www.ishrs.org/ishrs-advertising.htm>

ISHRS On-Demand Webinars

Going Viral: Unlocking the Secrets of Social Media for Hair Transplant Patient Education and Beyond



Intro to Biostatistics & Evidence Based Medicine



"Grow Hair Grow!"—Minimizing Poor Growth in Hair Transplants, and New Ways to Max It Out



<http://www.ishrs.org/for-hair-doctors.htm>

Under "Educational Products", click
"On-Demand Webinars".

Bridging
Technology and Art
in Hair Restoration
Surgery

Save the Date

San Francisco

2013



ISHRS 21ST ANNUAL
SCIENTIFIC MEETING

October 23-27

Hyatt Regency San Francisco

International Society of Hair Restoration Surgery
303 West State Street, Geneva, IL 60134 USA
TEL 1.630.262.5399 or 1.800.444.2737 | FAX 1.630.262.1520
info@ishrs.org | www.ISHRS.org





**Advancing the art and
science of hair restoration**

Upcoming Events

Date(s)	Event/Venue	Sponsoring Organization(s)	Contact Information
March 14-17, 2013	ISHRS Regional Workshop Cowgirl Hair Loss Workshop Houston, Texas, USA	International Society of Hair Restoration Surgery Hosted by Carlos J. Puig, DO www.cowgirlhairloss.com	Tel: 1-713-974-1808
April 17-20, 2013	ISHRS Regional Workshop 18th Annual Live Surgery Workshop Orlando, Florida, USA	International Society of Hair Restoration Surgery Hosted by Matt L. Leavitt, DO	Valarie Montalbano, Coordinator 407-373-0700 ext. 103 HValarieM@leavittmgt.com
April 29-30, 2013	ISHRS Regional Live Surgery Workshop: Patient Selection and Hairline Design Manchester, England	International Society of Hair Restoration Surgery Hosted by Bessam K. Farjo, MBChB www.ukhairsurgeryworkshop.com	Tel: +44(161)237-3517 dr.bessam@farjo.com
May 4-6, 2013	7th World Congress for Hair Research Edinburgh, Scotland	European Hair Research Society www.hair2013.org	hair2013@meetingmakers.co.uk
May 24-26, 2013	ISHRS Regional Workshop: 2nd Mediterranean FUE Workshop Madrid, Spain	International Society of Hair Restoration Surgery Hosted by Alex Ginzburg, MD & José Lorenzo, MD http://www.2ndmediterraneanfueworkshop.com	Regarding the Program: joselorenzo@injeritocapilar.com Tel: +34-610-0444-033 Regarding Registration: info@ishrs.org Tel: 1-630-262-5399
October 23-27, 2013	21st Annual Scientific Meeting of the International Society of Hair Restoration Surgery San Francisco, California, USA	International Society of Hair Restoration Surgery www.ishrs.org	Tel: 630-262-5399 Fax: 630-262-1520

HAIR TRANSPLANT FORUM INTERNATIONAL

International Society of Hair Restoration Surgery

303 West State Street
Geneva, IL 60134 USA

Forwarding and Return Postage Guaranteed

FIRST CLASS
US POSTAGE
PAID
CHICAGO, IL
PERMIT NO. 6784

Dates and locations for future ISHRS
Annual Scientific Meetings (ASMs)

2013: 21st ASM
October 23-27, 2013
San Francisco, California, USA

2014: 22nd ASM
November 2014
Bangkok, Thailand

