Hair's the Question*

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**The questions presented by the author are not taken from the ABHRS item pool and accordingly will not be found on the ABHRS Certifying Examination.*

Continuing the inspiration I found from the book *Cicatricial Alopecia* by Drs. Price and Mirmirani, here are some more scarring alopecia related questions.[1] As with the last set of questions, the terms scarring and cicatricial are used interchangeably.

1. Which of the following is true when considering a scalp biopsy in a patient with suspected scarring alopecia?

A. Scalp biopsy is crucial and should be completed at the initial visit even if time does not allow for additional testing or history.
B. Lab testing is crucial and should be completed at the initial visit even if it does not leave time for a biopsy.
C. Before performing any biopsy, the patient's insurance should be checked first to see if a biopsy is covered.
D. All patients should be referred to a dermatopathologist to perform any biopsy of suspected cicatricial alopecia.

2. Which of the following is true when performing a scalp biopsy in a patient with suspected scarring alopecia?

A. When performing any biopsy, you should avoid areas of active disease or areas that have a positive anagen pull test.
B. You should elect areas for biopsy that appear as if they are late-stage or resolving.
C. You should take one or two 4mm punch biopsies for horizontal and vertical sectioning.
D. You should take one 6mm punch biopsy in the direction of hair growth for horizontal sectioning and H&E staining.

3. Why is a scalp biopsy important to a hair transplant surgeon in a patient with suspected scarring alopecia?

A. Because intra-operative steroid injections must be used in a patient who has active cicatricial alopecia and is undergoing a hair transplantation procedure.
B. Because active cicatricial alopecia patients might be candidates for transplant.
C. Because ACell+PRP injections can reverse active scarring alopecias negating the need for surgery.
D. Because end-stage cicatricial alopecia patients might be candidates for transplant.

4. What is the first step in performing a hair pull test?

A. Perform densitometry or direct visualization of the scalp in order to get an initial estimate of the patient's hair density.
B. Place the patient prone or supine on a surgical table depending on the area to be pulled.
C. Tell the patient that you are going to pull their hair.
D. Grasp a section of hair and tug the ends of the hair in opposite directions.

5. Which of the following is NOT a situation in which an anagen hair may be easily extracted during a pull test?

A. Loose anagen syndrome
B. Tight anagen syndrome
C. Active primary cicatricial alopecia
D. Anagen arrest

6. Useful diagnostic classifications for scarring alopecias include which of the following?

A. Scarring Alopecia with Fibrosis (SAF)
B. Lymphocyte-Mediated or Neutrophil-Mediated Primary Cicatricial Alopecias (LMPCA and NMPCA)
C. Neutrophilic Based Alopecia (NBA)
D. Parafollicular Granulomatous Alopecia (PGA)

7. Why is the dermatopathological classification of scarring alopecia into LMPCA, NMPCA, or mixed categories important to a hair transplant surgeon?

A. To predict body hair involvement (brow, beard, etc.)
B. To determine if it is early disease and thus an option for surgery
C. To rule out Lichen Planopilaris (LPP)
D. To guide diagnostic decision making and thus clinical treatment

8. Which of the following is true about the treatment of cicatricial alopecias?

A. Primarily neutrophilic-mediated alopecias (NMPCA) are initially treated with hydroxycholoroquine (an immunomodulating agent).
B. PPAR-gamma agonists (and glitazones) are a new treatment option in lichen planopilaris (LPP).
C. High potency corticosteroids are used in all cicatricial alopecias with quick relief of symptoms for the patient.
D. Predominantly lymphocytic-mediated alopecias (LMPCA) are treated first with antimicrobials and second with topical high-potency corticosteroids.

9. Which of the following is generally true about cicatricial alopecias?

A. Cicatricial alopecias have no effect on general health.
B. Scarring alopecias generally occur in patients who have multiple health problems.
C. Scarring alopecias are contagious.
D. Scarring alopecias are hereditary.

10. A patient comes to you with a predominantly NMPCA that is not responding to treatment. Which of the following is a reasonable next step?

A. Re-biopsy since an NMPCA may become a lymphocytic-mediated alopecia LMPCA.
B. Try treatment that would normally be first-line for LMPCA (i.e. immunomodulators) since histology does not always correlate with a patient's response to treatment.
C. Repeat cultures.
D. All of the above

⇨ *Answers on page 136*

Hair's the Question

from page 135

1. **A.** Time is of the essence when diagnosing these complex scalp disorders and the pathological picture can change rapidly. Getting a biopsy early in the disease process increases the likelihood that an accurate diagnosis can be made.
2. **C.** Though C is correct, I personally prefer to request all scalp biopsies to be an ellipse and not a round punch so as to avoid the "dog-ear" appearance once stitched. A 6mm biopsy is unnecessarily large although the H&E staining and horizontal sectioning may be preferred by your friendly neighborhood dermatopathologist. Target areas that show active disease (a positive anagen pull test would be a sign of this) and avoid those that are late-stage since the biopsy will be less useful.
3. **D.** The effect of ACell+PRP is not known in scarring alopecia patients, and patients with active scarring alopecias are definitely NOT candidates for hair transplantation! I made up the bit about needing steroid injections and A is also wrong because you probably would not be doing surgery in these patients in the first place!
4. **C.** It is amazing how many times patients do not get this simple courtesy from their doctors. Chairs are preferable to tables so B is wrong, and densitometry as in A is unnecessary. D tells how to perform a hair fragility test and any breakage found with this simple test is abnormal.
5. **B.** There is no such thing as "Tight Anagen syndrome." The other three are all examples of conditions where an anagen hair may be easily pulled out. Anagen arrest commonly occurs during chemotherapy.
6. **B.** While no classification system is perfect, B is correct. I love acronyms in medicine—and this tendency seems to be international. I wanted to add the Folliculocentric Interstitial Fibrosing Alopecia (FIFA) so as not to be "Amerocentric," but I ran out of answer space.
7. **D.** For your information, dissecting cellulitis and acne keloidosis would be considered examples of the mixed category since they do not easily fall into the LMPCA or NMPCA category.
8. **B.** This is correct due to the fact that PPAR-gamma activity is reduced in LPP. NMPCA treatment is typically antimicrobials, and LMPCA is treated with immunomodulating agents (such as hydroxycholoroquine) and topical high-potency corticosteroids.
9. **A.** The book makes the point that as practitioners we should emphasize the good news about cicatricial alopecia, namely, that it is NOT contagious, or hereditary, and that it occurs in generally healthy individuals. It is emotionally very stressful and disconcerting for the patient, but there IS a silver lining!
10. **D.** I almost never write "All of the above" questions since that is almost always the answer, but in this case these were such interesting points about the course of treatment with cicatricial alopecias that I wanted to include them all. While the average hair surgeon may never be in the position to direct the medical treatment of a scarring alopecia patient, it is often the case that you get these patients in consultation during the course of their treatment, so it is worth it to keep up with what the latest treatments are so you can counsel patients accordingly.

Reference

1. Price, V., and P. Mirmirani. *Cicatricial Alopecia: An Approach to Diagnosis and Management*. Springer Science+Business Media, LLC 2011.

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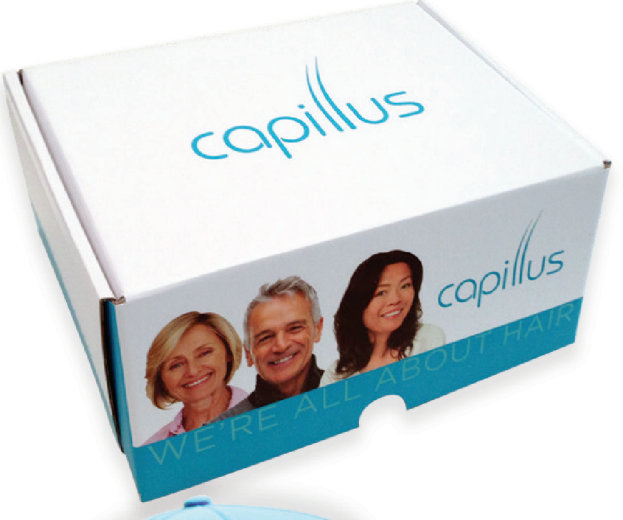

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Meetings and Studies

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

Every year, many doctors and assistants interested in hair restoration attend ISHRS regional workshops, and for many it is their first hair meeting. They have something for everyone—from beginners to intermediate and experienced surgeons. Panels with live patients are key features of the meetings, and surgery cases feature donor harvesting with strip and FUE techniques including the robotic system, manual and powered FUE devices, female cases, corrective cases, combo surgery (donor strip and FUE) in the same patient, and long hair eyebrow cases. The following meeting reviews are from Orlando and Manchester workshops. In addition, Hair Sciences is now an important part of our ISHRS meetings and here we also review the World Congress for Hair Research.

Review of the 19th Annual Orlando Live Surgery Workshop

April 17-20, 2013 • Orlando, Florida

Wednesday/April 17, 2013

Roy B. Stoller, DO New York, New York, USA

Dr. Perez-Meza began the day with his lecture, "Hair Restoration for Dummies," which has become a tradition over the past 12 years as the quintessential guide for beginners. He emphasized every patient is different and that the physician is responsible for all medical and surgical aspects of hair restoration, including the ability to cut and place grafts and to train the staff.

Dr. Mark Waldman's "The Etiology of Hair Loss and Scalp Disorders," gave a comprehensive review of scarring and non-scarring alopecias. Dr. Waldman stressed the differences between normal and abnormal hair cycling, and included pearls on how to recognize normal patterns of hair loss, especially the subtleties between male and female patterns. The interplay of hormones on hair loss also was presented. Slides were shown that helped with difficult diagnostic dilemmas, including lichen planopilaris vs. psuedopelade, and sample clinical workups and treatment plans were reviewed.

Dr. Francisco Le Voci reviewed the main components of the consultation. A key message he gave was the need to observe any possible psychological disorders, such as body dysmorphic syndrome, to ensure the patient is mentally stable to undergo a surgical procedure.

Dr. Bernardo Arocha presented "Hairline Design." He showed the audience pictures of hairlines and asked us to pick out which were the transplants and which were natural. This drove home the point that the goal is to have a natural and undetectable hairline after surgery. He noted the need for good donor evaluation and discussed da Vinci's rule of facial proportion and basic design protocols that included how to design a shingling point.

Dr. David Josephitis presented "Equipment and Instrumentation in Hair Restoration Surgery or the Tools of the Trade." Pre-operative tools such as patient education material and exam evaluation tools (magnifying loops, densitometers, computer assisted evaluation scopes, comb, rulers and a marker) were discussed. He noted that pre-operative photos should be taken, and stressed the need for patient and staff comfort. An overview of a basic procedure room set-up was presented for both strip and FUE procedures. For the post-operative phase, the need for instructions for the patient, dressing, a post-op kit and medications, optional low level laser treatments, and a hair wash facility were discussed.

This author presented "Introduction to Anesthesia," which provided an overview of what a beginning surgeon needs to think about regarding patient and staff comfort and a controlled field. Anesthesia protocols need to be developed by each surgeon based on empirical data but allowing for the surgeon to use modalities with which the physician is familiar. The most common drugs used for relaxation, local anesthesia, and hemostasis were reviewed. A video of how to perform a ring block was presented and I described my technique for body hair procedures.

Dr. Vincenzo Gambino presented "Donor Harvesting with a Strip Procedure," reviewing the donor safe area and donor estimation, and he demonstrated a safe strip donor harvest. There also was a video presentation on how to perform a double layer closure.

Dr. James Harris presented "Donor Harvesting with the FUE Technique." He began by clarifying what makes a patient a better candidate for FUE and then covered the possible disadvantages including the increased time it takes to harvest the grafts, the grafts' fragility, possible decreased survival rates, increase costs to the patient, possible catastrophic results, and the increased time it takes for a surgeon to train to perform the procedure. He highlighted the multitude of automated systems, including a robotic device, available on the market. The basic principles of sharp and dull techniques were reviewed along with the needed instrumentation to perform the procedure. Graft handling and removal were presented with examples of clinical results.

Dr. Harris also presented "Recipient Site Creation." He noted that hair angulation, direction, density, irregularity of hairlines and graft survival are key to good aesthetic results. A presentation of the pros and cons of parallel vs. perpendicular sites showed the theoretic considerations of control of angulation, surface trauma, and damage to existing hairs and appearance. Dr. Harris stated that most patients will not achieve high density in all areas and that high density grafting usually results in lower survival rates.

Safe surgery without significant complications was the emphasis of Dr. Yagyu Kuniyoshi's "Pre- and Post-Operative Medications, Continue or Discontinue." He presented data that demonstrated maintenance dosages of beta-blockers, anticoagulants, antiplatelet drugs, low dose aspirin, and warfarin "did not cause hemorrhagic tendency during surgery." *Editor's note: A comprehensive article on this topic was written by Dr. Yagyu in the Forum (March/April 2012).—NF*

Dr. Edwin Suddleson presented "Emergency Preparedness." He suggested making a list of emergency conditions that would require an immediate and urgent response and to then make a plan to resolve the issues. The most common classifications of anesthesia levels of office-based surgery were presented: Level 1—surgery performed under topical or local anesthesia; level 2—peri-operative sedation is used, and level 3—general anesthesia is used. Surgeons need to be aware of the laws that govern their practices regarding office-based anesthesia. He recommended that the physician and the staff be certified in BLS with AED (level 1) and ACLS (levels 2 and 3).

Dr. Carlos Puig addressed "Ethics in Hair Restoration Surgery." In his opinion, the importance of providing the patient with enough information to make an informed decision regarding surgery is paramount. Dr. Puig stressed that physicians must be honest with their experience and credentials. He asked us to think about hair restoration as still an "immature industry," and he believes that there is still consumer distrust for our services because we have poorly defined industry standards.

Dr. Bernard Arocha presented "How to Get Started" (in hair restoration surgery). He reiterated the ISHRS's position statement that only licensed and trained physicians should extract tissue from the body and scalp. Dr. Arocha spoke about fellowship training, CME, workshops, and how much training is needed for the different modalities of surgery. He summarized the need to follow sound surgical principles that are safe and aesthetically pleasing.

Other topics discussed today included graft preparation and placement, pre and post op instructions, and complications. "Surgeons without complications, asserts Dr Perez-Meza, "are retired." Finally, Dr. Matt Leavitt's "Pearls in Hair Restoration Surgery" emphasized the nuances that make practices a success.

Thursday/April 18, 2013

David Perez-Meza, MD Mexico City, Mexico

Dr. Miguel Canales began with a non-CME presentation on Restoration Robotics that included an excellent overview of the ARTAS Robotic System in which he pointed out that the basic operation system includes sophisticated imaging and hair assessment algorithms with blunt dissection and an easy to use physician interface. He detailed the evolution of this device, which increases the graft production rate per hour and decreases the transection rate.

This author mentioned how the OLSW has impacted the hair restoration industry and the HR surgeons since its inception in 1995. The day's panels followed:

Male Hair Loss and Hairline Design Panel. All aspects of the consultation were described in detail with the patient including his goals and expectations. The faculty drew the hairline with different variables and the surgical plan was discussed.

Female Hair Loss Panel. Dr. Leavitt detailed FPHL and noted the value of the consultation. All the panelists discussed critical and important topics with the patient and the audience. They used the video microscope to compare the donor and recipient areas, to illustrate what was a normal caliber hair vs. miniaturized hair and to compare normal vs. pathological scalp. They reminded us of the importance to listen in detail to our female patients about their concerns and particular goals. This patient was also one of the day's surgical cases.

Donor Estimation, Strip Harvesting, Donor Closure, and Trichophytic Closure. Grading Scale to Evaluate Graft Quality. Dr. Carlos Puig spoke about the importance of graft quality as one of the key components for successful hair growth and hair survival. He mentioned the MHR (Medical Hair Restoration) Scale, a morphological graft grading. The system grades grafts by looking for the anatomical qualities that protect vital structures during dissection and transfer. Dr. Gambino lectured and presented a video about his technique, which eliminates follicle transection during strip harvesting and allows the maximum amount of available FUs and a double closure that creates minimal scarring. Dr. Leavitt reviewed his technique for donor closure with the zipper closure, which is a two-layer closure utilizing a deep layer of horizontal mattress sutures with Monocryl 4-0 and nylon sutures in the skin.

Donor Harvesting with FUE Technique. This has been a hot topic among doctors and patients for the last several years. It is an alternative technique for donor harvesting but patients and new doctors on occasion have been misled about the technique by ads that assert it does not involve scalpels, scars, or complications. It does result in a circular scar with different grades of hypopigmentation. It is a great technique for some types of patients, as is the strip technique for others, but it has pros, cons, side effects, and complications.

Dr. Ziering discussed the pros of the robotic system as faster learning curve than manual FUE, quality follicular units, cutting-edge technology and reduced physician fatigue vs. manual FUE. He presented several clinical cases with excellent results, with more than 500 grafts harvested per hour and 7.7% or less transection rates, and a non-implantable rate of less than 0.1%.

Dr. James Harris noted that the FUE technique has presented some unique challenges that are a result of the technique itself, such as minimal supporting tissue and the possibility of scarring that may manifest itself as patterns in the donor area or visibility at the fringe margins. He concluded that it is important to find an FUE technique that works best in your hands, to treat grafts carefully, to spread extractions out to avoid overharvesting and patterns, and to tread carefully at the upper fringe.

I finished up by noting the complications of FUE. Any surgical technique requires two critical steps: good planning and good execution. If either of these is not performed correctly, a complication could occur. I reiterated complications in the donor area, such as tiny circular hypopigmented scars, overharvesting in younger patients, anagen-telogen effluvium, hyper or hypo esthesia, burying the grafts, etc., and in the recipient area poor growth related to poor graft quality and folliculitis. Graft quality is one of the keys for a successful HTS, and the use of the microscope is very valuable in FUE cases too. Cases with complications using the FUE technique were shared, and I noted that prevention is critical to avoid complications.

Surgery Center

A scalp cadaver session with cutting and placing station for hands-on experience was offered and surgery cases were presented:

1. Donor harvesting with FUE technique with the ARTAS System in a male patient. Donor estimation and the use of the skin tensioner, etc., was discussed and demonstrated. More than 500 grafts were harvested and evaluated under the microscope.
2. Donor harvesting with strip technique in a male patient. Donor estimation, harvesting, and donor closure with the zipper technique was demonstrated and discussed.
3. Female surgery case. The surgery team discussed medical and surgical options in FPHL and instruments used for making the recipient sites.
4. Donor harvesting with FUE technique in a male patient. All the aspects of the FUE technique were discussed and demonstrated, and several FUE devices were demonstrated along with key points to keep in mind to improve results.

Friday/April 19, 2013

David Josephitis, DO Minneapolis, Minnesota, USA

The day's panels included the following:

Donor Harvesting with Donor Strip and FUE Techniques. Panelists discussed pros and cons of incorporating the robotic FUE into a hair restoration surgery practice including the financial implications. Dr. Crisostomo reviewed his technique of combining the donor strip method with donor FUE technique to maximize yield in HRS.

⇨ page 140

Recipient Sites and Surgical Plan. Dr. Harris spoke about the variety of devices that can be used to make sites as well as the various shapes and sizes of the instruments, recommending using the smallest instrument reasonably possible to fit the graft that is to be transplanted. The distinct use of coronal/perpendicular versus sagittal/parallel sites was discussed, noting that coronal sites give better control over angulation, while sagittal sites may be easier to place and damage less of the surrounding hair.

Dr. Puig discussed the importance of always planning for the worst-case scenario when creating the hairline and placing grafts. Look at the availability of donor in the future and try to reverse the process of hair loss with the HRS. The goal should always be to keep the patient looking natural no matter what the future holds for continued loss. The priority areas should be the bridge, frontal third, and finally the vertex in that order of importance.

Dr. Friedman discussed the use of sagittal sites compared with coronal sites noting improvement in coverage with coronal sites. Advantages of coronal incisions are more precise angulation, reduced injury to the underlying subdermal plexus because of shallower incisions, and less popping when placing grafts. Also discussed was increased efficiency with the use of multibladed handles for the making of recipient sites in some cases.

Special Cases. Dr. Suddleson discussed the restoration of eyebrows, noting 85% of cases of eyebrow restoration are for females and that it is important to have clear and realistic goals. The use of facial landmarks is important in determining a natural appearing shape, and a longer graft will help to maintain an appropriate axial direction of hair growth. Dr. Basto recommended performing the entire HRS in the supine position; the removal of the donor strip can be done in two steps by rotating the patient's head to the left or right. Sites can be made simultaneously as the donor area is closed to increase efficiency. Benefits of this technique are increased speed as well as increased donor survival of grafts with delayed removal of the donor strip. Dr. Gambino discussed the controversial topic of HRS in patients under the age of 25 and how history and physical exam are especially important to determine any clues as to the patient's future pattern of hair loss. Also important are to always be as conservative as possible in the planning of the procedure and to not create too low of a hairline.

Tools and Techniques—PRP. Dr. Mohebi described the gigasession. He noted the benefits of a large single HRS as providing more coverage and being more affordable, and the downsides as it is a very demanding surgery for the doctor and staff and there is an increased risk for complications. The importance of laxity measurement was also noted and an introduction of a laxometer that could be used both pre- and peri-operatively to safely maximize donor strip width was provided. Dr. Reese discussed the current role of platelet rich plasma (PRP) in HRS. While it is known that PRP improves wound healing and increased vascularity, it is not well established through studies if there is an increase in hair growth. More studies are needed and an established protocol for the creation of PRP is necessary in order to fairly compare different studies. An FDA-approved PRP system is currently available. Finally, more is not better, and it has been shown that a physiological level of PRP is most advantageous. Dr. Juliano discussed the importance of dermoscopy in the evaluation of females with hair loss. Many types of dermatoscopes are available and should be used in conjunction with a good physical exam including a hair pull test. Vascularization, dots/orifices, caliber of hair, and other clues can be seen with the easy, non-invasive exam, and this will lead to a more accurate diagnosis.

Dr. Perez-Meza spoke about the benefits of the under-discussed topic of hair systems. He noted two important objectives: the transition to hair transplantation of those hair system users and the use of hair systems for some types of hair loss patients. Hair system patients are usually highly motivated, but they are also quite often very challenging. It is important to know about the options available for transitioning the patient out of the hair system as they undergo HRS which usually involves multiple procedures and to set only realistic expectations. Thanks to improvements in hair systems, there are now various levels of density available in order to gradually transition a patient. For some patients with low donor or high expectations, a quality hair system may be the best option.

Research Update. Dr. Kohler discussed the current use of low level light therapy (LLLT) for hair loss. The proposed mechanism of action is via the mitochondria of the cell. The current recommended wavelength of light is around 650nm. There are many laser devices on the market but only HairMax and MP-90 are FDA approved.

OPERATION RESTORE. Dr. Perez-Meza pointed out that patients who have been victims of trauma, burns, accidents, cancer, or radiation and who lack the funds to have hair restoration can present a real challenge because of the damage to the patient's self-esteem and the scarring hair loss area(s). He mentioned that the program has given out more than US$450,000 of free surgery. Because less than 10% of the ISHRS's members are involved in the program, he invited more to join. Several excellent OPERATION RESTORE cases were presented by Drs. Di Stefano, Perez-Meza, and Glenn Charles, including a very interesting identical twin case in which one was donor and the other recipient.

In the afternoon, the participants moved to the live surgery workshop consisting of ARTAS FUE, long eyebrow hair restoration in two patients, strip FUT using trichophytic closure, and a combination strip FUT/FUE procedure.

Saturday/April 20, 2013

Mark Di Stefano, MD Worcester, Massachusetts, USA

Dr. Ken Washenik gave his "Research Update" on his research using the mouse model that involves dermal and epidermal cells placed in tissue culture and in varying conditions that are injected into genetically altered "bald" mice. This injection causes a cluster of hair follicles in 1-2 weeks. This process is called neogenesis. The human phase 2 trials that have evolved from this approach involved autologous epidermal and dermal cells injected into the crown of bald men. Unlike the mouse where neogenesis ensues, this combination of cells and assay reactivates the dormant or miniaturized follicles. The process of regrowing existing follicles is called morphogenetic switch. A summary of selected data from Phase 2 trials completed to date showed that approximately 60% of the balding subjects had an increase in hair count compared to baseline and approximately 40% demonstrated an increase of 13 or more countable hairs per square centimeter. An increase in hair fiber width was noted in some of the subjects as well. This process will not work in scars because there are no normal scalp structures in the scar. It is felt that the effect will last at least one hair cycle, but it is not known if it will last longer.

Dr. Leavitt presented "Lotions and Potions Update" that included FDA-approved drugs, herbal medicines, vitamins, botanicals, different lotions and medical devices. Dr. Leavitt stressed the emotional side of hair loss. In North America, billions of dollars are spent on hair loss remedies, including real and bogus medicines, devices, and potions. The only FDA-approved therapies/devices for hair loss are minoxidil, finasteride, dutasteride, bimatoprost (Latisse), and laser therapy. You can educate yourself on all that's out there at www.hairlossscams.com and www.hairfoundation.org.

Dr. Leavitt also presented an overview on the Hair Foundation, which attempts to bring together individuals from all walks of the hair industry—scientists, businesspeople, beauticians, etc.—to

provide unbiased information to the public. Those who have any area of special interest or expertise in hair and would like to be part of the Hair Foundation were asked to contact the medical director as well as to go to their blog to participate in the discussion groups.

In the "Difficult Cases and Complications" session, Dr. Ricardo Meija spoke about poor planning in HRS. Whether you use an advisor consultant or do all of the consults yourself, it is imperative that you listen to the patient and use this as a major part of your evaluation and planning process. Factors such as patient expectations, patient characteristics, and physician skills determine who is an appropriate candidate. Know your limits and refer as appropriate. If you have a patient advisor consultant, make sure they are trained and understand what is possible in your hands. They should not be making medical decisions and promising unrealistic results and you should know what they have said to the patient. Also be aware that what the patient "heard" is not necessarily what was really said. Ensure the entire staff is on the same page—the surgical techs and the front office. In the consult, have the patient explain his/her expectations and draw a hairline. Poor pre-op planning can sabotage results from the start.

In the "To Operate or Not to Operate" lecture, Asim Shahmalak presented a female African patient with traction alopecia creating a band of hair loss from supra-auricular bilaterally connected across the frontal hairline. It is important to make the correct diagnosis before moving foreword with a surgical procedure. Is the condition an ongoing process or has the cause been removed? Take away points: Know your patient's expectations and your limitation. Get help if you are unsure of the diagnosis or how to treat the problem.

Drs. David Perez-Meza, Leavitt, and Eugene Rodillo presented a corrective case in a male patient who had surgery in the past that resulted in a low and pluggy hairline with further significant hair loss in the front and midscalp. The first corrective surgery included removing and recycling the pluggy grafts from the hairline and a second surgery at the 2012 OLSW created a natural hairline and some density in the front and midscalp. A third surgery is expected to be scheduled. They pointed out the importance of natural results with the use of FUs including the appropriate angle, direction, and tilt of the recipient sites. Also noted was that when a complication occurs, 2 or more surgeries could be necessary to correct it.

Dr. Meija spoke about skin cancer of the scalp. He discussed several types of cancerous and pre-cancerous lesions and the need to do a thorough exam of the scalp to specifically look for any lesions. Actinic keratosis presents as an erythematous, brown, scaly and rough patch of skin. It is a pre-cancerous lesion that needs to be treated by a specialist. He noted the ABCDE's of skin cancer: asymptomatic, border irregular, color variation, diameter, and elevation. Take away points: Do not be distracted and do a complete scalp examination in an organized fashion looking for any size of lesions. If a suspicious lesion is found, it should be dealt with before a hair transplant procedure.

Dr. Meena Singh spoke about hair transplants in scarring alopecia, and noted the importance of an accurate diagnosis, detailed history, and thorough scalp examination. Primary considerations are finding the cause of cicatricial alopecia including discoid lupus, lichen planopilaris, and frontal fibrosing alopecia, which may mimic androgenetic alopecia. Other considerations include candidate selection, patient expectations, vascular supply, scalp thickness, and fibrosis. Before proceeding with a procedure, she believes that you should wait for 1-2 years of inactivity. Take away message: complete H&P, accurate diagnosis, manage patient expectations and proceed with caution.

I presented a lecture entitled "Donor Closure Using Towel Clamps." Because of tumescence and removal of tissue from the donor area, the donor wound can be difficult to close. The simplest way to help the situation is to wait 10-15 minutes for the tumescence to dissipate. Next, do one of the following: undermine, score the galea, or just pull tight with sutures or staples; however, all of these pose a significant risk for complications. A way that I have found to be effective is to use towel clamps. Once the cut is made and the strip is removed, moist gauze is placed in the wound and held closed with towel clamps placed about every 3-4cm. A subcutaneous running suture of 3.0 Vicryl is used to close the subcutaneous tissue. With a running suture, 4 bites are placed and then a towel clamp is placed to clamp the wound shut and the suture pulled tight. Continue this until the end of the wound and tie it off. Remove all of the towel clamps and this should bring the skin edges very close and you should be able to close the wound with little or no tension. I get excellent results with this method and have been able to stop undermining.

There also were 4 surgical cases in the afternoon, including 3 strip donor surgeries, 2 of which demonstrated how to increase hair density in previously transplanted patients. The third case demonstrated from start to finish the planning and surgical techniques involved in hair restoration. The final case was a female patient with Ludwig Class 2 hair loss in which the FUT donor strip technique was used to increase density in the hairline and temporal points.◆

Review of the Manchester Live Surgery Workshop

April 29-30, 2013 • Manchester, England

Edwin S. Epstein, MD *Virginia Beach, Virginia, USA* esehairmd@gmail.com

Monday/April 29, 2013

The Manchester Workshop included over 70 attendees with all levels of experience. Presentations were geared to beginner and intermediate levels; surgeries focused on hairline and crown design and harvesting techniques including strip and FUE using motorized, manual, and robotic techniques.

Dr. Ed Epstein discussed the consultation and patient selection, focusing on how to evaluate and manage patient expectations and results. He outlined selection criteria and potential objective and psychological red flags, and presented two patients with expected hair transplant results who were disappointed due to high expectations or miscommunication during the consultation.

Dr. Jerry Cooley presented the principles of hairline design, with a review of anatomical landmarks, age, and ethnic and gender variations. Dr. Bob Haber addressed the donor area including the safe zone, anesthesia techniques, and anatomical and skin characteristic considerations. He provided in-depth information on strip harvesting techniques and techniques to minimize transection, and on closure techniques to improve scar results.

Dr. Jose Lorenzo gave an overview of FUE techniques incorporating anatomy, hair density, and angulation, and pearls to minimize transection. He discussed various punches on the market, noting differences in size, sharpness, outside vs. inside diameters, and cutting edges. He reviewed the various motorized systems and the techniques and tools for graft extraction.

Live Surgeries

The procedures included: 1) *Norwood V patient:* 1,000 FUE grafts were planned, 500 using ARTAS and 500 with a motorized system. Techniques of hairline design were demonstrated. 2) *Norwood III patient:* 1,200 grafts, with a focus on strip harvesting techniques that minimized transection. Also demonstrated were a skin scoring incision with skin hooks using traction to separate the follicles, and Dr. Haber using his spreader device. Both techniques had minimal transection. For hairline design, Dr. Haber showed his "hatch marking" style, with the incorporation of mounds in the frontal hairline. 3) *Norwood III patient:* 1,200 grafts. Grafts were removed by strip harvesting, and the use of ACell in the donor and recipient areas was demonstrated. The potential benefits of ACell are reduced donor scar fibrosis, angiogenesis, and "repair" of damaged grafts.

Tuesday/April 30, 2013

Dr. Parsley discussed graft preparation and management. He reviewed and compared holding solutions including IV solutions vs. advanced tissue storage vs. culture media. Other factors for successful graft management included graft dissection techniques, the use of magnification and lighting, issues affecting graft survival, and technology, such as platelet-rich plasma, ACell, and liposomal ATP.

Dr. Melike Kulahci discussed recipient area planning and site creation. She presented her approach to hairline design, emphasizing site angulation, depth, and incision direction of coronal vs. sagittal. Dr. Russell Knudsen covered female hair transplantation. Patterns of hair loss were reviewed, as well as female hairline design and nuances in surgical technique emphasizing variations in angulation in the temporal areas. Dr. Vincenzo Gambino discussed the surgical approach to the crown and patient selection criteria. His approach starts with the peripheral area moving inward, and he also described variations with single and double whorls. Dr. Nilofer Farjo presented complications focusing on pre-operative patient selection, hairline design issues, and factors that can contribute to less than satisfactory results. She also covered the major and minor potential complications and their prevention and management.

Live Surgeries

The procedures included: 1) *Female hairline:* The nuances of female hairline design were demonstrated and transplanted in the frontal forelock and temporal gulfs. 2) *Scarring alopecia in a patient with a congenital scalp defect initially repaired unsuccessfully by scalp extender and complicated by infection:* FUE was performed in a male patient with tight scalp laxity. FUE, motorized, and manual techniques were compared. 3) *Robotic FUE using ARTAS and manual FUE:* Around 1,300 grafts were harvested, the crown designed, and recipient sites made in 40-year-old patient with crown baldness.◆

Review of the 7th World Congress for Hair Research

May 4-6, 2013 • Edinburgh, Scotland

Greg Williams, MBBS, FRCS(Plast) *London, UK* dr.greg@farjo.com

The 7th World Congress for Hair Research (WCHR), chaired by Professor Andrew Messenger with Professor Valerie Randall as the scientific chair, had over 600 attendees. Scientific papers presented were accompanied by a poster that could be digested at leisure or viewed during poster rounds, and it was possible to ask basic questions directly to the presenter.

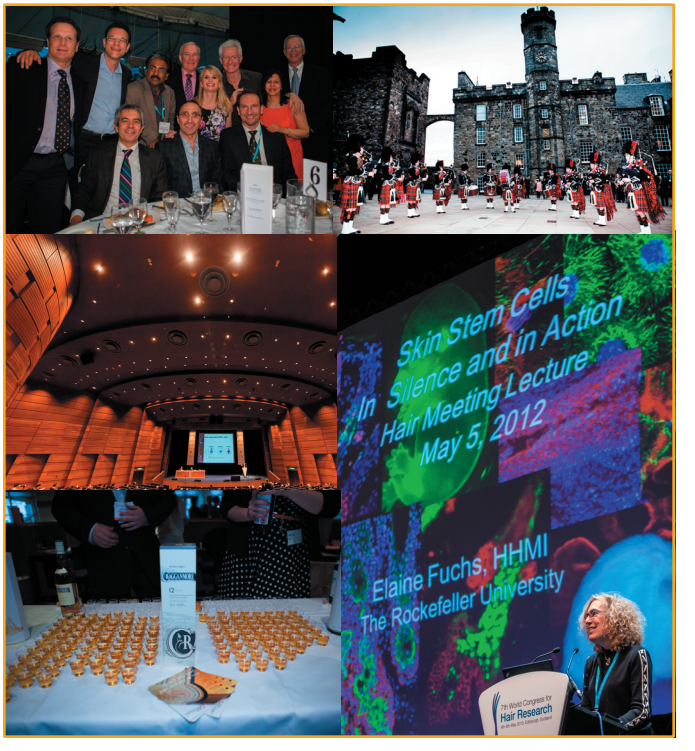
On the first morning, the Pre-congress Clinical Course included the following talks: Mike Philpott, "Understanding the Hair Cycle and Hormone Changes on Hair Follicles"; Vicky Joliffe, "A Clinical Approach to the Patient Presenting with Hair Loss"; and Paul Farrant, "Dermoscopy as a Non-Invasive Tool in Diagnosing Hair Conditions" and "Histopathology and Hair–When and Where to Biopsy." In the second morning session, the following lectures were available: Kathrin Hillman, "Monitoring and Evaluating Hair Loss in Clinical Practice"; Abraham Zlotogorski, "The Child with Sparse Hair"; and Bessam Farjo, "Hair Transplants: Who is Suitable? How is it done? What's New?" The afternoon included: Amy Michael, "Hair Disorders in Patients of Colour"; Matt Harries, "Managing Lymphocytic Cicatricial Alopecias"; and Vera Price, "Managing Female Pattern Hair Loss—From Minoxidil to Androgen Blockade—What Works?" All of the talks were applicable to our day-to-day practice as hair transplant clinicians.

In the afternoon, there were three parallel Science Education Sessions: "Genetics and Epigenetics: All You Wanted to Know but Were Afraid to Ask!", "What's New in Hair Follicle Mouse Systems," and "Hair Fibre Science with a Focus on Curly Hair." As with the whole conference, Mike Philpott's talk, "Classical Perspectives on Human Hair Follicle Organ Culture," was of particular interest to me.

In addition, there was a photographic exhibition of patients with alopecia by Daniel Regan sponsored by Alopecia UK on display throughout the conference along with some very moving poems written by alopecia sufferers.

The next two days were filled with scientific papers running in four concurrent sessions covering the following topics: "Tissue Engineering and Regeneration," "Stem Cells and Epigenetics," and "Hair Follicle Development, Control of the Hair Cycle, and Pigmentation." There were also some more clinically based sessions: "Alopecia Areata," "Cicatricial Alopecia," "Clinical Cases," and "Androgenetaic Alopecia and Hair Restoration."

There were three Plenary Symposia: "An Update on Hair Follicle Stem Cells," "Progress in Clinical Hair Disorders," and "What's New in Clinical Hair Research/What's New in Basic Science Aspects of Hair Research?" In addition, there was the following symposia: "A Look into the Future of AGA Management and Product Innovation with Minoxidil," "Effects of Fibre Damage: From Molecular Structure to the Clinical Situation," "Scalp and Hair Health—Interrelationships and Molecular Insights," and a Unilever Dove–sponsored symposium, "Hair Fibre Science Meets Product Design: New Technologies for Delivering Hair Care and Repair," from which there were product giveaways that I will definitely be trying out on my daughter's frizzy hair!



Undoubtedly one of the highlights of the meeting was Sunday's Keynote Lecture, eloquently given by Elaine Fuchs, entitled, "Skin Stem Cells: In Science and in Action," which showcased the amazing research she has done. The other highlight was Monday's John Ebling Lecture from the esteemed Ulrike Blume-Peytavi entitled, "The Hair Follicle: The Root of the Future. Clinical Research, Implications, and Advances."

No conference is complete without a gala dinner and in true Scottish style there was a lively Ceilidh with dancing and singing. I encourage readers to consider adding the WCHR to their calendar of conferences to attend. We as hair transplant surgeons provide a steady source of material to labs, but we are also at the forefront of treating many disorders that might one day be obsolete if the kind of research that was presented at this meeting continues. The 8th Annual WCHR—under the slogan of "Wonder of Nature, Wonder of Hair"—will be held on the Jeju island of Korea, May 14-17, 2014.

For more meeting highlights you can access the summary on the European Hair Research Society website at http://ehrs.org/wp-content/uploads/2013/06/7th-World-Congress-for-Hair-Research-Meeting-Report-May-2013.pdf. —NF◆

Letters to the Editors

Re: Whey protein shakes and increased hair growth: science or scam?

John Cole, MD *Alpharetta, Georgia, USA* *john@forhair.com*

When Dr. Lawrence Shapiro (DOPA Hair Transplant Surgeon, Delray Beach, Florida, USA) first introduced his proprietary whey protein supplement, Help Hair, to the hair restoration community, its welcome was accepted with ambivalence. Physicians saw the product as an inert nutritional agent that may potentially improve the overall health and well-being of patients without exposure to harmful side effects. As in any surgical procedure, the margin of success following a hair transplant is maximized in a patient presenting with otherwise perfect health. The ideal patient is one who adheres to a healthy diet and exercise regimen, who has adequate levels of all essential vitamins, minerals, and hormones, and who does not use tobacco products or consume alcohol in excess. However, this patient is rare. Most Americans do not follow the USDA nutritional recommendations or exercise with any regularity.[1,2] Obesity and malnutrition are often present simultaneously; as a nation we consume excessive calories with insufficient nutrients leaving us overweight yet vitamin deficient.[3] Hence, the decision to offer a nutritional supplement (Help Hair) to our patients under the recommendation of a fellow physician was entertained.

Since January 2012, I have personally given many of my patients Help Hair but have yet to see a correlation other than pure chance between its consumption and follicular regeneration. However, in reading Dr. Shapiro's "Help Hair Case Studies," an unsuspecting client would be led to believe that the product not only expedites hair growth following transplantation, but that it further has the capability of improving hair thickness or overall quality on its own. Maybe Help Hair actually did improve the quality or growth rate of hair in individuals who were previously deficient in one or more nutrients, but no evidence based medicine yet exists to substantiate this claim. Thus far, Dr. Shapiro has merely used self-reports from patients to assess the post-surgical quality of his product. In one case study, he employed a test population and a "control" population without regard for normalized standards within or between either of the groups. The test population was supplied Help Hair (64g daily in water) while the control was given neither a placebo nor a multivitamin counterpart. The patients were then contacted at 6 and 12 weeks following surgery and asked to assess their own hair growth. No qualitative measures were ever carried out. Furthermore, the hair growth that Dr. Shapiro claims to see pictorially appears more an illusion of styling, retention, or lighting rather than actual results.

We all know that following hair transplantation hair follicles continue elongating for a period of days, but then cease elongation. Many patients lose these dormant terminal follicles, while others maintain them for prolonged periods of time. These dormant hair follicles are dark in pigment and coarse in diameter. The hair shafts have a characteristic distal base that is wide and somewhat flat due to the cutting of the hair shafts of terminal hairs. The presence of these dormant terminal follicles weeks or months after transplantation is not evidence of rapid regrowth. It is evidence of a failure to remove these dormant terminal follicles that can lead to post-surgical inflammatory conditions such as cyst formation. Unfortunately, in the author's opinion, it appears that Dr. Shapiro assumes dormant follicles are evidence of premature growth as he submits them as evidence of rapid regrowth. Often, such images are blurred and of limited size so that the observer is incapable of magnifying the images. A seasoned hair restoration physician would have no other choice than to surmise that such efforts were intentional. Newly regenerated hair following transplantation typically has a decreased pigment, a narrow diameter, and a finer tip often similar to a spear. The most distal point may often be fine and darker than the more proximal aspect of the shaft similar to a pohlpinkus hair. Dr. Shapiro's images often include darkly pigmented, coarse, short follicles. Such images are not consistent with recent regrowth.

Beyond the limited quantitative validation that Dr. Shapiro has supplied towards Help Hair producing results are the preposterous claims he makes about the ingredients in his product. Dr. Shapiro has chosen to formulate his protein powder with whey protein concentrate rather than whey protein isolate, which he argues increases testosterone levels when used in conjunction with exercise. It does not. In fact, the literature that he references states the exact opposite, or that men between the ages of 52 and 72 who consume a whey protein isolate nutritional supplement before and after moderate resistance exercise have significantly lower testosterone than those who use none.[4] Moreover, those who ingested protein experienced no significant difference from the control group with respect to androgen receptor mRNA or number of androgen receptors (AR) on muscle biopsy. A statistical correlation was, however, drawn between the decrease in serum testosterone and AR upregulation, allowing the researchers to postulate that protein ingestion facilitates the movement of testosterone from the blood to the muscle, where it can have anabolic impact.

Whey is a naturally occurring protein that composes nearly 17% of the nitrogen-containing fraction of bovine milk. Whey can be isolated from the residual liquid following cheese production and filtered in varying degrees to alter the overall nutrient profile. Whey protein concentrate is produced by removing water, lactose, ash, and some minerals from raw whey, leaving behind a powder composed of 25-89% protein, 10-55% lactose, and 2-10% milk fat by weight.[5] By comparison, fat and lactose are removed to a much greater extent in whey protein isolate such that it typically contains $\geq$90% protein, <1 % lactose, and <1% milk fat by weight.[5] According to Dr. Shapiro, whey protein concentrate is the superior choice for preventing hair loss because it is "less denatured and contains a lower percentage of branched chain amino acids (BCAAs)." Though the traditional production process for whey protein isolate may have necessitated high temperatures that caused the proteins to denature, more sophisticated methods have since been developed that allow the bioactivity of minor compounds of whey to be preserved (i.e., TGF-β and IGF-1).[6,7] Moreover, in the metabolism of proteins, the secondary and tertiary structures are lost in the highly acidic gastric environment.

Protein metabolism begins in the stomach, where pepsin is secreted as a proenzyme that is activated from the low pH created by hydrochloric acid. Pepsin is a nonspecific endopeptidase (an enzyme that cleaves the peptide bond) that displays variation in hydrolysis in accordance with amino acid structure. In general, amino acids with aromatic side chains are most highly favored.[8] Hydrolysis of peptides continues in two duodenal stages: intraluminal and intracellular. The intraluminal stage employs pancreatic enzymes (e.g., trypsin and chymotrypsin, elastase, and carboxypeptidases) to convert protein chains into peptide sequences and individual amino acids.[9] The peptides are

broken down even further in the membrane/intracellular stages, as aminopeptidases on the luminal surface of the mucosal brush border metabolize larger peptides (3 to 6 amino acid residues) into free amino acid residues that enter the portal vein.[10] Interestingly, di- and tripeptides are absorbed faster than free amino acids,[11] yet Dr. Shapiro insists that "denatured whey protein isolate" is of lower quality than whey protein condensate and supplements his formulation with a wide variety of free amino acids.

One may recall that Dr. Shapiro has also criticized branched chain amino acids and might wonder what negative impact he thinks BCAAs have on hair growth. Well, for one, Dr. Shapiro has stated that branched chain amino acids are responsible for increased testosterone production. To support this phenomenon, Dr. Shapiro references research conducted by Zajac et al. that measured blood serum hormone levels in response to strength training performed with or without arginine and ornithine supplementation.[12] First of all, neither of the aforementioned amino acids is even branched; leucine, isoleucine, and valine are the only naturally occurring BCAAs (all of which are specially added to Help Hair). Secondly, the research indicated that amino acid supplementation only created significant elevations in growth hormone (GH) and insulin-like growth factor-1 (IGF-1), not testosterone. Furthermore, increasing IGF-1 levels is more likely to have a positive impact on the hair follicle since IGF-1 signaling controls the hair growth cycle and the differentiation of hair shafts.[13] Nevertheless, rising testosterone levels are worrisome with respect to androgenic alopecia. Enzymes located in the dermal papilla (5-α-reductases) can convert testosterone to the more potent androgen, 5-α-dihydrotestosterone (DHT). DHT binds the same androgen receptors (AR) as testosterone but with a much greater affinity,[14] which inhibits IGF-1 production in the dermal papilla.[15]

Testosterone is a steroid hormone that is derived from cholesterol and possesses both androgenic and anabolic properties. The human body has natural control mechanisms in place to regulate the amount of free testosterone in blood serum. Specifically, testosterone production is controlled by the hypothalamic-pituitary-testicular axis. Excretion of gonadotropin-releasing hormone (GnRH) by the hypothalamus causes the pituitary to secrete follicle stimulating hormone (FSH) and luteinizing hormone (LH), both of which stimulate testosterone production in the testes.[16] Negative feedback by testosterone on the hypothalamus and pituitary then inhibits GnRH and FSH/LH release, respectively. Still, a number of environmental factors can contribute to heightened (or suppressed) testosterone levels. Resistance exercise is a particularly well-established method for transiently increasing testosterone concentration in blood.[17] Since the anabolic properties of testosterone promote protein synthesis and growth in tissues with androgen receptors, protein supplementation has long been a strategic mass-building tool for weight lifters. Once bound, testosterone is translocated into the cytoplasm where it evokes changes in DNA transcriptional activity, forming mRNA that associates with ribosomes to begin protein synthesis. In theory, consuming a protein shake prior to strength training provides the body the nutrients (amino acids) and the time to charge tRNA with the appropriate amino acid for testosterone-driven peptide synthesis in the affected muscle.[18]

Finally, Dr. Shapiro has spoken out against the use of growth hormones and other anabolic "lifestyle products." In support of his argument, he has referenced case studies that investigated the treatment of pre-pubescent boys who were severely deficient in growth hormone with exogenous growth hormone.[19] In this study, patients treated with contaminant testosterone and growth hormone responded by increasing their lean muscle mass via normal developmental patterns. In other words, the experimental treatment triggered the pre-pubertal boys to enter puberty. From this study, Dr. Shapiro interpreted that growth hormone is synonymous with hair loss; however, this is completely unrelated to presented information and inapplicable to the treatment population. When growth hormone is investigated as a supplement to the exercise regimen of fit adults (22-33 years old, 3 male/3 female) without a growth hormone deficiency, Crist et al. found a dose-dependent response of lower total cholesterol and higher circulating IGF-1.[20] Both of these findings would be considered favorable for establishing healthy scalp conditions. As mentioned previously, testosterone is a sterol derivative and IGF-1 controls hair cycle signaling. However, administration of growth hormone to those lacking a deficiency is in no way condoned and should not be practiced.

Whether or not Help Hair is advantageous in fighting hair loss, stimulating hair growth, or speeding the telogen to anagen transition of transplanted grafts is yet to be seen. Currently, no concrete evidence exists to substantiate its benefit; likewise, there is no evidence to prove that the product will harm consumers. As a general rule, patients should consider the influence their lifestyle choices place on their protein demands before blindly consuming Help Hair. Sedentary adults should strive to ingest 0.8g protein/kg body weight per day, while greater quantities of protein are recommended for endurance athletes (1.2-1.4g/kg/day) and strength or power training athletes (1.4-1.8g/kg/day).[5] Adults should further consider taking a multivitamin daily as well as exercising for 30 minutes a day, 5 days a week, and eating a balanced diet. If already following these guidelines, Help Hair may have no effect, but in cases where deficits exist, the product may work to correct them. Still, the role of Help Hair in follicular regeneration or maintenance will have to be evaluated systematically and thoroughly before any of Dr. Shapiro's claims about his product can be taken seriously.

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⇨ page 146

Letters to the Editors

from page 145

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Re: FUE and donor planning

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Russell Knudsen's commentary entitled "Does FUE change donor planning?" in the March/April 2013 edition of the *Forum* repeats the warning of many hair restoration surgeons (HRSs) whose concerns, unfortunately, are rarely seen in physician publications and physician-to-laymen Internet postings. I, for example, strongly cautioned in my commentary on FUE, in the 2011 edition of *Hair Transplantation,* about the danger of removing hairs or FU from areas that are "likely or more likely destined to lose their hair and to lose them earlier, instead of from areas that are less likely to be destined to do so—the 'Safe Donor Area' described in Chapter 9A[1] and shown in Figure 9A1-2." I added, "The primary goal of HRS should be to transplant the most likely permanent hairs—unless, in what must be rare instances, the patient is forewarned of this long-term danger and decides to accept it."[1]

More importantly, however, because it is far more difficult to predict, are the cosmetic consequences of fringe hair density and hair caliber that inevitably decrease with the passage of time. "Over depletion" and scar noticeability is certain to become more frequent and more easily noticeable as this occurs. I thought we HRSs had learnt that lesson many years ago when we used punches to extract grafts from the donor area with 4mm punches, leaving no noticeable scarring at the time this was done. But as the years went by those scars did become noticeable—at first only with the hair wet and then later with the hair dry. Anybody who has been doing transplanting for 10 years or more will probably have come across such patients whose donor area scars are obvious and for whom this is their most embarrassing inheritance of donor harvesting too superiorly, too inferiorly, and too extensively. No lament has been more common amongst the "pioneers" of hair transplanting and their patients, than what eventually happened in the donor area of some of their early patients. The recipient area plugginess became less obvious but the donor area got worse and worse. Too many FUE practitioners are in grave danger of repeating that error—only this time with smaller but far more numerous scars. Let no one say that they haven't been warned.

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Review of the Literature

Nicole E. Rogers, MD *Metairie, Louisianna, USA* nicolerogers11@yahoo.com

Vitamin D and hair: should we care after all?

Aoi, N., et al. 1α,25-dihydroxyvitamin D3 modulates the hair-inductive capacity of dermal papilla cells: therapeutic potential for hair regeneration. *Stem Cells Transl Med.* 2012; 1:615-626.

Japanese researchers previously investigated and demonstrated that 1α,25-dihydroxyvitamin D3 upregulates expression of TGF-β2 and alkaline phosphatase activity, which are both features of hair-inducing human dermal papilla cells. In this study, they used a rat model of de novo hair regeneration by murine dermal papilla cell transplantation, and pretreated the cells with Vitamin D3. They found that it significantly enhanced hair folliculogenesis, with a greater number of outgrowing hair shafts and higher maturation of regenerated hair follicles. They go on to suggest how Vitamin D3 may promote functional differentiation of dermal papilla cells, especially within the context of hair regeneration therapies.

Comment: Although there is evidence that dysfunction in the Vitamin D receptor in newborns can cause patchy alopecia, no evidence has linked male or female pattern thinning with deficiencies of Vitamin D. Many hair specialists routinely check Vitamin D, and supplement when it is very low; however, there is also little evidence that normalizing vitamin D can correct MPHL or FPHL. That being said, this research is interesting and may play an important role in the eventual cloning and regeneration of hair follicles.◆

"What is the CARF?"

Victoria Ceh, MPA, Executive Director, Cicatricial Alopecia Research Foundation *Geneva, Illinois, USA* vceh@carfintl.org

The Cicatricial Alopecia Research Foundation, otherwise known as CARF, is an international, non-profit public charities organization and the voice for patients with cicatricial alopecia. It is important that physicians who see and treat patients with cicatricial alopecia know about CARF and refer their patients to CARF for additional information and a supportive network.

CARF's mission is to:

- Fund research to find effective treatments, and ultimately a cure;
- Support patient education and advocacy; and
- Raise public awareness about the disease.

What Is Cicatricial Alopecia?

In contrast to male or female pattern hair loss and alopecia areata, which are potentially reversible conditions, primary cicatricial alopecia comprises a diverse group of rare and neglected inflammatory disorders that destroy the hair follicle, replace it with scar tissue, and cause permanent hair loss. Often, there is intense pain, itching, and burning and the progression is rapid and disfiguring. Patients state they feel as if their scalp is "on fire."

How CARF Helps

CARF funds and promotes research. CARF-funded research is leading the effort to find more effective treatments and a cure for cicatricial alopecia. See bottom of page 149 for details on CARF's Research Grants. Recent research funding includes the following:

- Dr. Pratima Karnik's seed grants from CARF funded her work that linked a defect in lipid processing and peroxisome biogenesis in cicatricial alopecia. Her publication of this groundbreaking research led to a $1.77 million grant from the NIH to continue this work. Her findings have led to the first treatment that addresses the cause of some cicatricial alopecias—pioglitazone, a medication already approved for other conditions.
- Dr. Thomas Franz and his team have identified a unique mouse mutant that has cicatricial alopecia. With the granted funds, Dr. Franz will identify the responsible gene and derive a patho-mechanism in his mouse model. By means of this study, we will gain insight into the different ways cicatricial alopecia may form.
- Prof. Marlon Schneider noted that the best known mechanisms of cicatricial alopecia involve abnormalities in lipid metabolism; moreover, the sebaceous glands are ablated in the earliest forms of the disorder. To better understand lipid processing in the sebaceous gland, Dr. Schneider has studied the role of perilipin in the biology of sebocyte lipid droplets.
- Prof. Hiroko Hama presented the hypothesis that sebaceous lipids play an important role in the pathogenesis of the cicatricial alopecias. The goal of his study was to exploit mouse models for the purpose of identifying the specific sebaceous lipids important to the formation of hair loss. To do this, Dr. Hama analyzed the lipids expressed in sebaceous glands of mice affected with cicatricial alopecia. This study should reveal a common metabolic pathway for the various mouse forms of the disorder.

CARF organizes a Cicatricial Alopecia Research Symposium every 5 years. In 2011, the meeting, entitled "Cicatricial Alopecia Research Symposium: Lipids, Inflammation & Stem Cells," was held in Bethesda, Maryland, USA, and brought together hair biologists, immunologists, dermatologists, environmental toxicologists, and hair transplant surgeons to pursue a deeper understanding of the etiology and pathogenesis of cicatricial alopecia. It facilitated the exchange of ideas and information between laboratory and clinical researchers to accelerate the translation of basic scientific discoveries into clinical applications. The next Cicatricial Alopecia Research Symposium will take place in 2016.

CARF organizes and facilitates patient support groups. CARF support groups, active in 10 cities in the United States, Canada, and England, serve as a forum for patients to share insights in a supportive, safe, and comfortable setting. Through the exchange of information, participants find emotional, medical, and cosmetic support for living with cicatricial alopecia. A physician is present at all meetings to answer questions and make sure correct, up-to-date information is given.

If you are near an area with an active support group—Boston, Chicago, Detroit, London, Los Angeles, Washington, DC, New Orleans, New York City, San Francisco, Toronto—please consider encouraging your cicatricial alopecia patients to attend. They will find great benefit in connecting with others with this disease. You may refer them to the CARF website: www.carfintl.org.

CARF holds patient-doctor conferences. The CARF biennial Patient-Doctor Conference is a multi-day educational conference where patients learn more about the diagnosis and available treatments, discover the latest research breakthroughs, hear about cosmetic solutions, meet leading physicians and researchers in the field, and participate in breakout sessions.

Please consider attending the next conference and, more importantly, please pass on the information to your cicatricial alopecia patients. Our patient conferences change people's lives. If you would like a stack of promotional postcards sent to your office to distribute to your cicatricial alopecia patients, please contact me at vceh@carfintl.org.

CARF provides education to the public via website, brochures, newsletter, and advocacy.

- Patient brochures for your office are available for a nominal fee. Please contact us for an order form. Sold in quantities of 50.
  - What is Cicatricial Alopecia?
  - CCCA
- The e-newsletter, "CARF Communiqué," is sent to those who subscribe to CARF.

Please consider joining CARF (no charge) so you may receive the e-newsletter and informative bulletins. Physicians, patients, friends and family of patients, and allied health professionals may join CARF:

- CARF collaborates with other organizations including Coalition of Skin Diseases, the National Organization of Rare Disorders (U.S.), American Academy of Dermatology, Dermatology Nurses Association, and the NIAMS Coalition (National Institute of Arthritis and Musculoskeletal and Skin Diseases–U.S.).
- CARF has a strong team of Scientific Advisors and Board members (see box). The Scientific Advisors meet twice per year, at the time of the Annual Meetings of the American Academy of Dermatology (AAD) in February/March and the Society for Investigative Dermatology (SID) in May. At the next AAD Annual Meeting (March 2014), the CARF Scientific Advisors meeting will be an open meeting to those physicians with an interest in cicatricial alopecia. Please consider attending.

CARF Scientific Advisors Meeting

Open to all interested physicians; At the time of the AAD Annual Meeting
Saturday/March 22, 2014, 7:00AM-8:00AM
Denver, Colorado, USA *(Hotel and room to be announced)*

CARF SCIENTIFIC ADVISORS
Pratima Karnik, PhD, Chairman
Case Western Reserve University
Victoria H. Barbosa, MD, MPH, MBA
Rush University Medical Center
Wilma F. Bergfeld, MD, FACP
The Cleveland Clinic Foundation
Valerie D. Callender, MD
Howard University
Kevin D. Cooper, MD
Case Western Reserve University
George Cotsarelis, MD
University of Pennsylvania
Maria Hordinsky, MD
University of Minnesota
Lloyd E. King, Jr, MD, PhD
Vanderbilt University
Amy McMichael, MD
Wake Forest University
Paradi Mirmirani, MD
University of California, San Francisco
Ralf Paus, MD
University of Luebeck, Germany
University of Manchester, UK
Michael D. Rosenblum, MD, PhD
University of California San Francisco
Leonard C. Sperling, MD
Uniformed Services University
Kurt S. Stenn, MD
University of Pennsylvania
John P. Sundberg, DVM, PhD
The Jackson Laboratory

CARF BOARD OF DIRECTORS
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Mary Clay, MS
Donna Coulson, MS, PCC
Jim Heerwagen
Sharon Potter
Vera H. Price, MD, FRCP(C), Founder
Jerry Shapiro, MD, FRCP(C)
Ken Washenik, MD, PhD

C.A.R.F.

Opportunity for CARF Research Grants

The Cicatricial Alopecia Research Foundation (CARF) seeks original, focused, and innovative research grant applications dealing with primary cicatricial alopecia (PCA). Applications will be accepted from laboratories around the world. The proposed project must serve to further CARF's research goals, namely, to understand the pathogenesis of PCA, an understanding that will lead to effective prevention and therapy. CARF will give priority to research proposals based on the following topics:

- Role of lipids and lipid metabolism in normal hair follicle stem cell biology and cycling
- Role of PPARs and other lipid regulators in the pathogenesis of PCA
- Role of peroxisomes in hair follicle biology
- Role of neuroinflammation in PCA
- Role of environmental triggers in the pathogenesis of PCA
- Function of sebaceous glands in normal hair follicle biology
- Mechanism of hair shaft egress from the terminal hair follicle
- Hair follicle regeneration in a site of tissue repair
- Studies that focus on the prevalence, incidence, and natural history of disease

Typical awards are $5,000 to $20,000. Applications are reviewed and funded on an annual basis, and funding decisions are made by June/July each year.

Annual Application Deadline: March 15
How to Apply: Access research grant application from CARF website at: www.carfintl.org

Message from the 2013 Annual Scientific Meeting Program Chair

Robert True, MD, MPH *New York, New York, USA* drtrue@hairlossdoctors.com

Registration is open for the 21st Annual Scientific Meeting in San Francisco. Don't procrastinate on registering, particularly if you want to ensure getting your first choices of the outstanding workshops and symposia that will be offered at the meeting. Registration is limited for these events and is on a first-come, first-served basis.

If you haven't already, be sure to look through the preliminary program and take note of the outstanding offerings of both the scientific program and the social events.

San Francisco Travel Association photo by Phillip H. Coblentz

Of special note are the many excellent choices for both the Coffee and Breakfast with the Experts. We want to provide you with a broader choice, so, new this year, at the halfway point an announcement will be made so attendees can switch to another table if they choose. The table leader will repeat any mini-presentations or opening remarks about the topic.

Also new this year is the ISHRS & ABHRS Morbidity and Mortality Conference (M&M). Attendance will be open to all physicians attending the meeting and pre-registration is required. M&M conferences are traditional, recurring conferences held by medical services at academic medical centers, most large private medical and surgical practices, and other medical centers. They are peer reviews of mistakes that occur during the care of patients that directly contribute to morbidity and mortality. Conferences are non-punitive and focus on the goal of improved patient care. The proceedings are generally kept confidential by law. Publicly presenting our complications takes tremendous courage, but ultimately it leads to the very best learning opportunities. Physicians will present their cases over a 5-7 minute time frame. Audience members will formulate and pose questions to the presenter to discuss how the case may have been managed differently and provide recommendations on how to eliminate the likelihood of repeat occurrences. It is anticipated that each case will require 15-20 minutes to complete. I am excited that this kind of educational experience will be part of the meeting and it should be a great experience for all attending. I look forward to seeing you in October.◆

Message from the 2013 Surgical Assistants Program Chair

Diana Carmona *La Jolla, California, USA* karis_137@yahoo.com

I want to encourage all of my ISHRS colleagues to attend our annual scientific meeting to be held in San Francisco this October. We are working on an information-packed program that will include a variety of topics, with both lectures and panel discussions and plenty of time for Q&A interaction. You will be amazed how much networking you can do during lunch time! In past years, doctors and staff have been reenergized with ideas and new techniques for assisting their doctors. This leads to excellence in patient care and satisfaction.

Our Surgical Assistant Workshop is being organized by Aileen Ullrich, our vice chair. We have made some changes to our program based on your feedback from last year. We are very excited to say that we have expanded it to 3 hours instead of 2 and have more time for new techniques. Don't forget this is a hands-on workshop.

We believe that everyone will benefit from the physician to their office and surgical support staff. So we encourage you to bring your entire staff!

Don't forget to make your plans as soon as possible to reserve your place in this exciting workshop.

For our panel discussion, please send your question to karis_137@yahoo.com as soon as possible so that we can have the answers ready for the meeting.

Looking forward to seeing you all there!◆

Message from the 2013 Surgical Assistants Program Vice-Chair

Aileen Ullrich *Hillsboro, Oregon, USA* aileen@gabelcenter.com

The 2013 ISHRS annual meeting is fast approaching and I am honored to be this year's surgical assistant co-chair responsible for organizing the hands-on workshop. The surgical assistant's workshop offers an in-depth, comprehensive, small-group format for teaching the skills and techniques necessary for optimal graft preparation and placement.

Participants will rotate through specifically designed teaching stations that each have expert technicians to provide personalized instruction and guidance. Photographs and video will be incorporated at each station to help explain basic principles, convey key concepts, and share advanced techniques.

We have an outstanding faculty of surgical assistants with many years of experience and who are passionate about teaching and sharing their knowledge. Together we will all work hard to provide an excellent educational program for each participant. Beginner and seasoned surgical assistants alike will find this to be a dynamic learning environment. New assistants are especially encouraged to attend the workshop, as it will be a wonderful opportunity to advance their knowledge and skills.

If you have any comments, ideas, or suggestions, please do not hesitate to contact me at Aileen@gabelcenter.com. I look forward to seeing everyone in San Francisco.◆

In fond memory of

Bradley L. Limmer, MD

Bradley Lynn Limmer, MD, went to rest in the hands of his Lord and Savior Jesus Christ on May 24, 2013, at the age of 47. He was born on October 21, 1965, in Galveston, Texas.

He graduated from Churchill High School in 1984, Texas A&M University in 1988, and the University of Texas Southwestern Medical School in Dallas, Texas, in 1992. Completing his residency training in dermatology at Tulane University in New Orleans, Louisiana, this native Texan returned to San Antonio to practice with his family. He was internationally recognized as an expert in the field of hair restoration surgery.

He was also an athlete, lettering in both football and track in high school and continuing as a competitive bicyclist in both road and mountain bike racing. He and his teams raised substantial funds for charities, which fit his loving heart for those less fortunate. For hobbies, he loved to hunt, fish, ski, snowboard, and spend time with his two beloved neices.

He is survived by his mother, Jane Limmer, his father and step-mother, Bobby and Carole Limmer, and his brother and family, Byron, Rachel, Allison and Emily Limmer of San Antonio, Texas.

He will be laid to rest in Taylor, Texas.

On May 24th, 2013, world-renowned surgeon and Coalition member Dr. Bradley Limmer passed away unexpectedly at the young age of 47. Born on October 21, 1965 in Galveston, Texas, Dr. Limmer went on to graduate from Churchill High School in 1984, Texas A&M University in 1988, and the University of Texas Southwestern Medical School in 1992. After medical school, Dr. Brad Limmer completed a residency in Dermatology at Tulane University and returned to Texas to join his father, Dr. Bobby Limmer at his renowned hair restoration practice.

In the late 1980's, Dr. Bobby Limmer revolutionized hair transplant surgery by introducing the "follicular unit" (hair groups as they occur naturally in the scalp) and microscopic dissection. After joining his father, Dr. Bradley Limmer spent years refining these and other techniques making follicular unit hair transplantation the "gold standard" of today's modern hair restoration surgery.

Dr. Bradley Limmer is well-known for his highly refined follicular unit hair transplant procedures and dedication to patient education. As a highly esteemed member of the Coalition of Independent Hair Restoration Physicians, he was deeply respected by his peers and his patients.

Dr. Brad Limmer regularly attended all International Society of Hair Restoration Surgery (ISHRS) meetings and frequently posted examples of his impressive hair transplant results on our discussion forum. Dr. Brad Limmer's passion was second to none and his dedication to state-of-the-art hair transplantation has helped countless hair loss sufferers restore not only their hair, but their lost confidence as well.

Those of us who've benefited from natural looking follicular unit transplantation owe a debt of gratitude to Drs. Bobby and Bradley Limmer for innovating today's state-of-the-art hair transplant procedures.

Along with his family and fellow loved ones who knew him personally, Dr. Bradley Limmer will be greatly missed by our hair restoration community and the thousands of grateful patients and people he's helped over the years.

Rest in Peace Dr. Bradley Limmer; October 21, 1965–May 24, 2013.

Pat, Bill, Dave, and Blake

The Hair Restoration Team for the Hair Transplant Network and the Coalition Hair Loss Learning Center

Brad Limmer was a true gentleman, a scholar and a friend. He possessed a rare combination of being a talented surgeon, a wonderful employer, and had tremendous compassion for his patients. While this was a life that ended too soon, the bar he set is the standard we all should strive for. I have been fortunate enough to work closely with Brad and his staff the past year. My self, along with the staff at the Limmer clinic, and his patients, will never forget the doc who wore a big smile across his face, and had a huge heart for others.

Dow Stough

Dr. Limmer and Carole ,Tracy, Yolanda, Diane, Darla, Hong, Christina, Frances, Zhuling (hair transplant side)

Tina, Margaret, Vianca, Patricia, Cynthia, Tona, Jennifer, Dr. Byron and Dr. Rachel (derm side)

What a tragedy is it! We grieve at the sad news. Our hearts ache so much.

We send our sympathies to his family, Bobby and Carol.

Please accept our sincere condolences.

Sincerely yours,

Kuniyoshi and Wakako Yagyu

Brad Limmer was a kind and welcoming member of the ISHRS community. He was one of the first to come up and introduce himself at one of my early ISHRS meetings. He truly will be missed.

Sincerely,

Sara Wasserbauer

I was stunned, disheartened, and filled with heart ache by the news of the loss of our friend and colleague, Brad Limmer. On the many occasions I had to speak with him, and enjoy our conversations, I learned he was funny, gregarious, smart, and ethical...and even though I felt he did not seek the limelight, I fully expected he would take on the mantle of responsibility in our Society if we asked him...and I had every intention of doing that. We will miss what he could have contributed, and we will miss him for what he had already done to build a reputation of skill and integrity within our profession and among the patients he cared for—and even though he walked in the path of his esteemed father, Bobby Limmer, who had every reason to feel proud of his son's accomplishments, Brad was clearly his own man with no sense of arrogance despite the great name he carried. No matter the age, a child is always a child to their parents, and I know how much sorrow his loss has brought to the Limmer family. This kind of sorrow never leaves us, we simply learn to live with it. A rising star has vanished, but that he brought us pleasure to know him means his light will live on in our memories.

Sharon Keene

In the brief moments that I got to know Brad, I found him to be a caring and passionate person. He had the intellect of his wonderful father and the same enthusiasm for life.

I will fondly remember his wonderful smile and affable manner. I only wish I knew him better.

Paul Rose

We all knew Brad as a super wonderful human being who was always wearing a smile. He will be missed. Susan and I must send our regrets for not being able to attend his funeral. Our thoughts and prayers are with you.

Tony and Susan Mangubat

Shizuka and I are deeply saddened by your loss. Brad was such a wonderful human being. He will be missed by us all.

Our thoughts and prayers are with you.

Bob and Shizuka Bernstein

We are shocked and devastated. Too young, too young. All parents will be standing shoulder to shoulder with you at this difficult time.

Sincere condolences,

Mario and Helen Marzola

Classified Ads

Offered for Sale—Limmer Hair Transplant Clinic

San Antonio, Texas.
Contact Dr. Bobby Limmer: limmerhtc@yahoo.com or
Tel: 1-210-496-9929 or 1-210-410-9506

Established Hair Transplant Practice for Sale

La Jolla Hair Restoration in La Jolla, California.
Contact Mehrad Nazari for further information: 1-858-459-4590, drnazari@yahoo.com

Seeking FUE Hair Transplant Surgeon

Are you a passionate, committed and experienced FUE hair transplant surgeon?
The Glasgow Clinic in Scotland is looking for the most talented FUE surgeons to work with us at our Glasgow base.
Surgeons at our clinic enjoy extensive media exposure across the UK and worldwide.
If you are interested in joining our team or want to discuss opportunities, contact Fraser Christensen
Tel: +44 (0) 141 248 4424; e-mail: fraser@theglasgowclinic.co.uk

Seeking Hair Transplant Technicians

The Mosaic Clinic is seeking Hair Transplant Technicians for our Houston Location.
Please send résume to: GreatClinicJobs@yahoo.com

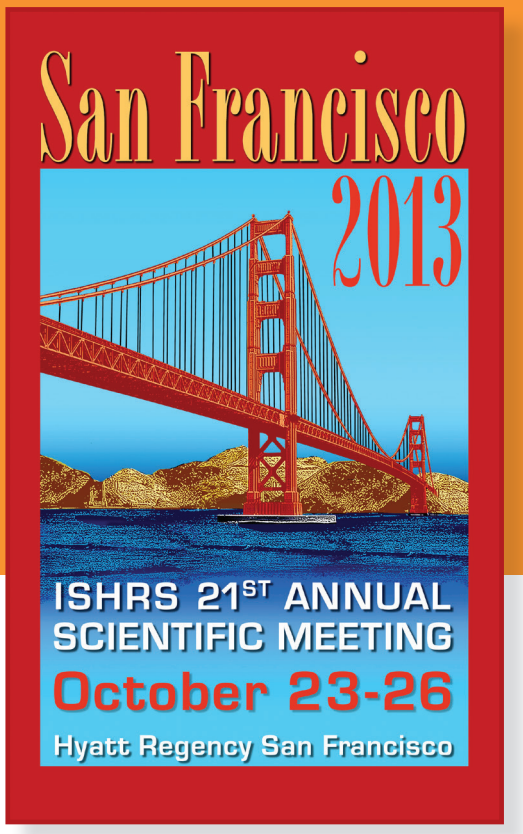
Seeking Experienced Hair Transplant Technician

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 AND call 919-362-5090.

Plan to Attend

Bridging Technology and Art in Hair Restoration Surgery

The ISHRS's annual scientific meeting is THE premiere meeting of hair transplant surgeons and their staff. You don't want to miss it.



GENERAL SESSIONS

- State of the Art Hair Restoration Techniques
- Small Group Discussion Tables on a Variety of Topics
- Approaches to Difficult Cases
- Finasteride Symposium
- Practice Tips and Surgical Gems to Achieve the Best Results
- Advances in Hair Biology
- Hairline Design Panel
- Live Patient Viewing

MORNING WORKSHOPS

- What the Hair Restoration Surgeon Needs to Know – Medical & Surgical Management of Non-Androgenetic Alopecia
  Directors: Vera Price, MD & Marcelo Pitchon, MD
- Corrective Surgery & Strategies
  Director: Jerzy Kolasinski, MD, PhD
- Hairline Design & Recipient Area Planning
  Director: Tony Ruston, MD
- Body Hair FUE
  Director: Alex Ginzburg, MD
- Ethnic Considerations in Hair Restoration
  Director: Kapil Dua, MD

LUNCH SYMPOSIA

- Hair Transplant Complications & Their Avoidance
  Director: Michael L. Beehner, MD
- Question the Experts
  Director: Sharon A. Keene, MD
- Hair Transplant Marketing Strategies
  Director: Bessam K. Farjo, MBChB
- Hair Transplant Outcome Improvements (PRP, Storage Solutions, ECM UBM, etc.),
  Director: Francisco Jimenez, MD

OTHER OFFERINGS

- FUE (Follicular Unit Extraction) Hands-On Courses on Specific Devices
- Basics in Hair Restoration Surgery Course – full day with hands-on stations
- Advanced/Review Course – full day
- Surgical Assistants Program and Dissecting & Implanting Workshop
- Networking Luncheon
- Social program including
  - Optional tours and activities in San Francisco
  - Welcome Reception
  - Annual Giving Fund Reception and Saturday Evening Gala Dinner/Dance
  - After Hours Party & Jam Session

NEWCOMERS ARE WELCOME!

We offer a "Meeting Newcomers Program" to orient those who are new to the ISHRS annual meeting. Newcomers will be paired with hosts.

We want to welcome you, introduce you to other colleagues, and be sure you get the most out of this meeting.

2013 ANNUAL SCIENTIFIC MEETING COMMITTEE

Robert H. True, MD, MPH, *Chair*
Paul J. McAndrews, MD, *Advanced/Board Review Course Chair*
Bertram M. Ng, MBBS, *Advanced/Board Review Course Co-Chair*
Jonathan L. Ballon, MD, *Basics Course Chair*
Samuel M. Lam, MD, *Basics Course Co-Chair*
James A. Harris, MD, *Workshops & Lunch Symposia Chair*
Jerry Wong, MD, *Live Patient Viewing Chair*
Bessam K. Farjo, *MBChB, Newcomers Chair*
Francisco Jimenez, MD, *Immediate Past-Chair*
Steven B. Hopping, MD
Antonio S. Ruston, MD
Jerzy Kolasinski, MD, PhD
Diana Carmona Baez, *Surgical Assistants Chair*

www.ISHRS.org/AnnualMeeting.html

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

INTERNATIONAL SOCIETY OF ISHRS HAIR RESTORATION SURGERY

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

2013: 21st ASM
October 23-26, 2013
San Francisco, California, USA

2014: 22nd ASM
November 12-16, 2014
Bangkok, Thailand

2015: 23rd ASM
September 9-13, 2015
Chicago, Illinois, USA

2016: 24th ASM
September or October 2016
TBD

INTERNATIONAL SOCIETY OF ISHRS HAIR RESTORATION SURGERY

Advancing the art and science of hair restoration

Upcoming Events

Date(s)	Event/Venue	Sponsoring Organization(s)	Contact Information
October 23-26, 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: 1-630-262-5399 Fax: 1-630-262-1520
October 27-28, 2013	Beautiful Brows ISHRS Regional Workshop *San Francisco, California, USA*	International Society of Hair Restoration Surgery Hosted by Sara Wasserbauer, MD *www.eyebrowworkshop.com*	Tel: 1-925-939-4763 info@californiahairsurgeon.com
November 14-17, 2013	5th Annual Hair Restoration Surgery Cadaver Workshop *St. Louis, Missouri, USA*	Practical Anatomy & Surgical Education (PASE), Center for Anatomical Science and Education, Saint Louis University School of Medicine In collaboration with the International Society of Hair Restoration Surgery *http://pa.slu.edu*	*http://pa.slu.edu*
November 22-24, 2013	AAHRS 2013 and Haircon 2013 (Joint meeting of AHRS and AAHRS) *Hotel Le Méridien, Bangalore, Karnataka, India*	Association of Hair Restoration Surgeons (India) and Asian Society of Hair Restoration Surgeons *www.haircon2013.com*	*mysorevenkat@hotmail.com* *drvasa@gmail.com* *drkapildua@gmail.com* *pradeep@vacationsexotica.com*
2 Sessions: March 11-14, 2014 May 20-23, 2014	University Diploma of Scalp Pathology and Surgery	University of Paris VI www.hair-surgery-diploma-paris.com	Tel: 33 (0)1 + 42 16 13 09 sylvie.gaillard@upmc.fr