# **Hair's the Question\***

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

\*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.

For those of you at the last ISHRS meeting, much controversy swirled around the use of various supplements. This has been a theme in our industry for years, with various claims for efficacy being touted without much scientific support. With that in mind, here are a few questions to test your knowledge of supplements and hair growth (with appropriate references at the end that you should use to expand your knowledge base!).



# **Supplements and Hair Growth**

www.ISHRS.org

- 1. A 35-year-old female presents to your clinic complaining of diffuse hair loss and ice cravings with the following laboratory studies:
  - WBC 6.3 RBC 4.9
  - Hgb 14.3 Hct 43.9
  - Ferritin 22 25-161 BMI 27
  - Prealbumin 25; normal 16-35 mg/dL (160-350 mg/L)

Which of the following supplements do you recommend?

- A. Iron supplements with Vitamin C for better absorption
- B. Iron supplementation from plant sources (e.g., spinach) instead of animal sources (e.g., red meat) since the heme moiety in animal protein is better absorbed
- C. Protein supplements with DHEA
- D. Antibiotics
- 2. Biotin deficiency
  - A. is typically one of the main causes of female pattern hair loss (FPHL) and should be supplemented (10mg/day or above as with hair, skin, and nails vitamins) in all patients meeting the criteria for Female Androgenetic Alopecia.
  - B. is typically seen in the pediatric population and the association with adult (female or male) hair loss is weak.
  - C. is a primary cause of both FPHL and male pattern hair loss (MPHL).
  - D. is common even among those without hair loss and therefore should be supplemented even among those without obvious hair loss.
- 3. Zinc deficiency
  - A. is rare and usually results in hair loss in the pediatric population.
  - B. is common and usually results in hair loss in cases of pancreatitis, intestinal bypass, and Crohn's disease.
  - C. does not ever cause hair loss.
  - D. can be treated with Zinc Pyrithione (also known as Head and Shoulders) shampoo.

- 4. Your 30-year-old male patient returns with increased hair loss 1 year after grafting 2,500 FUs to the frontal area. It is not clear on your examination if the hair loss is due poor graft growth or loss of native hair. In your investigation as to the cause, your patient gives you the following list of supplements that he takes regularly:
  - Protein and creatine supplement (milkshake powder, two shakes daily) for body building
  - Saw Palmetto (PO QD) unknown dose
  - Testosterone supplements (once a week at least) for body building
  - Vitamins C and E (PO QD)

Which of these might be related to his accelerated loss?

- A. Protein supplements
- B. Saw Palmetto
- C. Protein and creatine supplements and testosterone supplements
- D. Vitamins C and E
- 5. Your 30-year-old male patient returns with increased native hair loss 1 year after grafting 2,500 FUs to the frontal area. In your investigation as to the cause, your patient gives you the following list of supplements that he takes regularly:
  - DHEA and Danazol (androgens and derivatives)
  - Extra egg protein supplements (one scoop of powder twice daily) for body building
  - Vitamins D and B-12 (PO QD)
  - Nitric oxide with workouts

Which of these might be related to his poor growth?

- A. DHEA and Danazol
- B. Extra egg protein
- C. Both extra egg protein and the Vitamins (D and B-12)
- D. Nitric Oxide (inhaled)
- 6. An 18-year-old female presents with diffuse hair loss. Her BMI is 18 and she is in treatment for anorexia and bulimia. Her pre-albumin level is low (indicating malnutrition). What do you recommend to help her hair as she is recovering?
  - A. Supplementation with biotin
  - B. Supplementation with B-12 and protein
  - C. Supplementation with Vitamin D
  - D. Supplementation with Saw Palmetto and "hair vitamins"

#### Hair's the Question from page 37

- 7. A 30-year-old male presents with new onset hair loss. The loss is diffuse and started recently. The patient is confused and concerned since he is a self-described "health nut" and takes mega-doses of several vitamins including Vitamins E, C, A, and D. What do you suggest?
  - A. Stop the Vitamin E
  - B. Stop the Vitamin C
  - C. Stop the Vitamin A
  - D. Stop the Vitamin D

- 8. A 45-year-old male who has been a strict vegetarian for over 20 years presents with male pattern hair loss. The pattern of loss is the same as his father, brothers, and uncles. He also recently lost 30 pounds after having weight loss surgery. He is taking the following supplements: additional protein, sublingual B-12, Saw Palmetto, and occasional Vitamin A. Which supplement is helping his hair loss the LEAST?
  - A. Protein
  - B. B-12
  - C. Saw Palmetto
  - D. Vitamin A

#### Answers

- A. Iron supplements are absorbed better when taken with Vitamin C, from an animal (i.e., NOT plant) protein source (like red meat), and in smaller doses (15-50mcg). She is not malnourished (her prealbumin is within normal range as is her BMI), and there are no signs of bacterial infection.
- **B.** Biotin deficiency can cause hair loss as one of its symptoms (along with seborrheic dermatitis, dry skin, brittle nails, fatigue, intestinal tract issues, muscle pains, and nervous system problems). Even a cursory search of the available medical literature will demonstrate that biotin deficiency is also RARE among the adult population. Therefore, widespread supplementation with biotin is likely unnecessary and unlikely to improve hair growth. An exception to this would be those patients consuming large amounts of egg whites (i.e., more than 20 raw egg whites per day over a period of weeks to months) or with absorption problems (i.e., on parenteral nutrition etc.), and excessive/ prolonged antibiotics and anti-seizure medications. Fear not though, biotin (also known as Vitamin H and B7) is water soluble, so taking excess biotin from a costly supplement only results in expensive urine. If you like to recommend it to your patients, feel free to continue to do so.
- 3. A. Although A is true, the conditions listed in B, pancreatitis, intestinal bypass, and Crohn's disease, are ones in which zinc deficiency is commonly found. Zinc shampoo does not treat systemic zinc deficiency, but it can be a useful adjunct for improving hair growth according to some studies.
- 4. C. It is clear that testosterone supplementation can accelerate native hair loss, so his native hair might have experienced increased loss as the grafts were growing in. Additionally, body building supplements like protein shakes and creatine have been implicated in increasing DHT levels, which might also lead to additional loss of the native hair. No one knows how these may affect graft re-growth post hair transplant, (although several physicians that I spoke with at the M&M conference believe that it might retard graft growth in select cases as well). A happy discourse is likely to continue on the issue of supplementation until more definitive studies are available.
- 5. A. DHEA and Danazol are androgens and derivatives that have been documented to increase hair loss. Vitamins D and B-12 may cause hair loss when deficiency exists, but this is unlikely in his case. I threw in that extra egg protein answer to see if you were paying attention on the biotin question. Only raw egg whites in significant quantities for months to years will cause a biotin deficiency significant enough to be the cause of hair loss. I was unable to find a substantiated link between nitrous oxide and its use in body building and poor hair growth, but perhaps in the medical literature outside of the United States? Please let us all know if you are aware of research on this topic since it was a new concept for me at the ISHRS meeting.
- 6. **B.** Hair is >90% protein and malnourished patients need ad-

- ditional protein to regrow it. Additional B-12 may be benign in her case, but it wouldn't hurt either. Although claims such as "Treat hair loss naturally by eating more vitamins and supplements, and minerals for hair loss, such as Vitamin C, biotin, niacin, iron and zinc. If you cannot get these nutrients in the foods you eat, try vitamins for hair growth like Viviscal hair growth supplements" prey upon those with concerns over their hair loss, the scientific basis for these supplements restoring hair is thin. She does not have signs of Vitamin D or biotin deficiency (although it would not hurt to check and probably would not hurt to supplement).
- 7. C. High doses of Vitamin A (and its derivatives like Accutane) are known to result in hair loss. Vitamins A, D, E, and K are also fat soluble and tend to get stored in body tissues so you might want to warn him about those. Vitamin C is water soluble (like the B vitamins) and thus is at a low risk for hypervitaminosis.
- 8. C. He needs B-12 from his history of vegetarianism and weight loss surgery. He needs protein from his recent weight loss and arguably the vegetarianism, too. High doses of Vitamin A derivatives (like Accutane, etc.) have been implicated in telogen effluvium during treatment, but he is not on a significant dose. Saw Palmetto has not been shown to help hair loss, even though it is a weak DHT blocker.

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### Biotin deficiency:

https://umm.edu/health/medical/altmed/supplement/vitamin-h-biotin

"Egg whites have a chemical that binds to biotin very tightly preventing its uptake in the body's bloodstream."

http://www4.ncsu.edu/~knopp/BCH451/Biotin.htm *Creatine:* 

Increases DHT levels:

http://www.ncbi.nlm.nih.gov/pubmed/19741313 *B-12*:

http://www.ncbi.nlm.nih.gov/pubmed/8435917

Saw Palmetto:

http://www.ncbi.nlm.nih.gov/pubmed/14665895

### **Review of the Literature**

Nicole E. Rogers, MD, FISHRS Metairie, Louisiana, USA nicolerogers11@yahoo.com

### Microneedling for Hair Loss?

Dhurat, R., and S. Mathapati. Response to microneedling treatment in men with androgenetic alopecia who failed to respond to conventional therapy. *Indian J Derm.* 2015; 60:260-263.

Researchers in India reported promising results in four young men who had undergone microneedling for androgenetic alopecia. The first, a 30-year-old, had undergone hair transplant surgery, had been on finasteride, and had used minoxidil, but was still unhappy with his grade V Hamilton Norwood pattern of loss. The second, a 28-year-old male with grade VII hair loss, took minoxidil and finasteride for over 5 years and had hair transplant 2 years prior. The third was a 35-year-old male with grade V hair loss on minoxidil and finasteride for over 2 years. The fourth was a 40-year-old male with diffuse pattern hair loss on conventional therapy for 3 years with unsatisfactory results. For each treatment session, 1.5mm dermaroller was gently rolled over the affected areas in longitudinal, vertical, and diagonal directions until mild erythema was noted. Each session lasted 20-25 minutes. Patients were treated every week × 4 sessions,



then every two weeks for 11 more sessions (15 sessions total). At the end of 6 months, three patients rated a greater than 75% improvement and the fourth patient reported a greater than 50% improvement. At the end of 18 months' follow-up, all patients maintained the same response that was achieved in the last session of microneedling.

Comment: It has already been established by Dr. George Cotsarelis that wounding of the skin can contribute to hair regrowth. Many colleagues have used microneedling in combination with platelet rich plasma (PRP), hair transplantation, and mesotherapy with anecdotal reports of success. This paper suggests that microneedling alone may be responsible for much of this growth. Possible mechanisms include release of platelet derived growth factors, quite similar to PRP. More studies are needed to investigate this.



### **Topical JAK Inhibitors Showing Promise for Hair Loss!**

Harel, S., et al. Pharmacologic inhibition of JAK-STAT signaling promotes hair growth. Scie Adv. 2015; 1:e1500973.

Last year, inhibitors of the Janus kinase (JAK) signal transducer such as Xeljanz (tofacitinib, approved for rheumatoid arthritis) and Jakafi (ruxolitinib, approved for myelofibrosis) were shown to regrow hair in both mice and patients with alopecia areata. The medications were originally thought to only help regrow hair in cases of immune disruption. However, just recently, researchers at Columbia University showed that normal hair follicles (such as those affected by androgenetic alopecia) may also benefit. They found that treatment of normal shaved mice with topical

JAK inhibitors resulted in rapid reentry into the hair cycle, with a mechanism similar to the Shh agonist.

Comment: The results of this study suggest that we may soon have a "miracle treatment" for androgenetic alopecia. Use of JAK inhibitors has heretofore been limited by potentially severe side effects as well as high cost. Assuming that topical JAK inhibitors can eventually undergo clinical trials with resultant FDA approval (and at a cost that is not prohibitive), we may finally reach the holy grail of hair loss therapy.



### Safety of Spironolactone

Plovanich, M., Q.Y. Wang, and A. Mostaghimi. Low usefulness of potassium monitoring among healthy young women taking spironolactone for acne. *JAMA Dermatol.* 2015; 151:941-944.

Spironolactone is a potassium sparing diuretic used off-label in dermatology to treat acne, hirsutism, and hair loss. A retrospective study of healthy young women taking spironolactone for acne was performed. Data from 2000-2014 were collected from 2 tertiary care centers in the United States. The rate of hyperkalemia was analyzed in 974 women on spironolactone, as well as 1,165 healthy young women taking and not taking spironolactone to get a profile for the baseline rate of hyperkalemia in this population. Patients with cardiovascular disease, renal failure, or on contradicted medications were excluded. There were 13 abnormal serum potassium measurements in

1,802 measurements, demonstrating a rate of 0.72%, equivalent to the .76% baseline rate seen in this population. The authors concluded that routine potassium monitoring was unnecessary for healthy women taking spironolactone.

Comment: Spironolactone has been utilized innovatively by Dr. Rod Sinclair and others for treatment of female pattern hair loss. However, many physicians are hesitant to use the drug due to concerns about lab monitoring of electrolytes and kidney function. This article may help hair loss specialists feel comfortable prescribing spironolactone for healthy patients with female pattern hair loss.

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In this study we evaluated the force required for a variety of 1 mm diameter punches sold by multiple vendors to penetrate through a specimen with known material properties and parameters. We used a Dillon compression force gauge to determine the punching force as a measure of sharpness. We lowered the punch into the test media at a constant velocity. We plotted the punching force against time as the punch cut through the medium. The force drops abruptly when the punch cuts through the medium (Figure 2).

As you can see, the Cole punches cut the same silicone sheet with far less force than all of the competitors. Please note that titanium nitride (TIN) coated cannula punches are offered by a number of medical instrument vendors. In this study we used a commonly available 1 mm cannula punch. All 1 mm TIN coated cannula punches have a similar duller cutting surface than the punches available from Cole Instruments.

Removal of grafts in FUE requires two forces. One is the axial force, which is the force applied to the punch to insert the punch into the tissue. The other force is a tangential force, which is either an oscillating or rotating force around the axis of the hair follicle (Figure 3).

Follicles exit the scalp at an acute angle to the curvature of the skin. This means that the inferior edge of the punch will contact the skin first when the punch is applied down the direction of hair growth or the axis of the hair follicle (Figure 3). This will result in a greater axial force on the inferior aspect of the follicular unit. The unequal axial force will result in follicle displacement inferiorly (Figure 4). If the follicle is displaced inferiorly, the follicle is at much greater risk of bisection.

The surgeon may minimize the risk of follicle bisection by minimizing the axial force through the use of a sharper punch. Both the required axial force and tangential force are reduced when the surgeon uses a much sharper punch. The best method to extract grafts with minimal follicle transection is to let the punch do the work rather than physically forcing the punch into the tissue.

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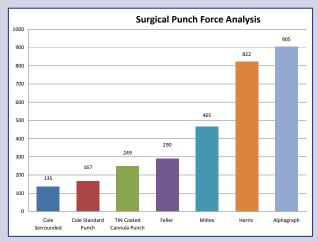


Figure 1.

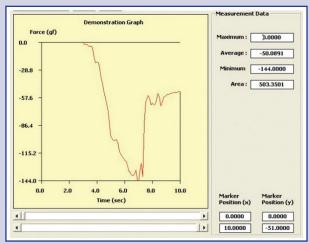


Figure 2. Compression Force Gauge

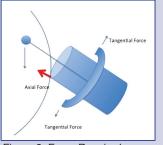




Figure 3. Force Required

Figure 4. Follicle Displacement

manual handle or our Programmable mechanical extractor (PCID) allows physicians the capacity to produce optimal results for patients. The PCID offers rotation, oscillation, and rotation followed by oscillation so that the surgeon can adapt to the individual characteristics of the patient. Our punches come in a variety of sizes to accommodate the wide variation in follicular unit size and splay that is seen between patients.

#### **Bibliography**

1. Cole J. Hair Transplant Forum, January/February 2009 Volume 19, No. 1 page 20.

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# Message from the ISHRS 2016 World Congress Program Chair

Marcelo Pitchon, MD Belo Horizonte, Brazil marcelopitchon@gmail.com

Happy New Year ISHRS!

I wish all the ISHRS membership and staff a healthy, happy, prosperous 2016. I also wish that in 2016 we may learn even more than in our previous years. Our commitment to learning has brought us all to where we are. Commitment to knowledge was our choice since we were kids and much more after we became doctors. Studying, learning, researching, innovating, our whole lives, differentiate us as privileged humans in a world that needs light.

2016 is the year of the ISHRS 24th World Congress of Hair Restoration Surgery, which will be held in Panama, October 19-22. We had a wonderful meeting in Chicago 2015, with the highest attendance ever in ISHRS history. But we want more, we need more. We have never had as many beginners in our field as we are having now. FUE has been one of the reasons for such an increase. With FUE, it has become much easier for a doctor to start practicing hair restoration and that is absolutely fantastic, but we must bring those new doctors to our Congress. It is essential that they attend our superb Basics Course, with all its content including hairline design. It is crucial that they attend our complications panels or even the M&M (Morbidity & Mortality) Conference.

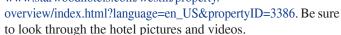
It is very important that we all get much universal knowledge about hair restoration since it is a complex procedure and it demands a million times more knowledge than just planting hair. It is not only important for the patient's safety or for us as doctors, but also for our entire field. I think Panama will be very important. Here we can address and discuss the current moment and trends of hair restoration throughout the entire world, not forgetting our role as the leading education organization in the world that has influenced and produced the best hair surgeons since 1993.

We have been seeing shocking images of patients being treated in large rooms with more than 10 surgeries being performed simultaneously—very probably by non-medical assistants and hopefully with the supervision of a doctor. Those images certainly point to a totally wrong simplification of the medical, surgical principles of our profession. I invite all membership in all countries to promote our Congress to the new doctors who are already performing surgery but haven't yet attended our meetings or attended just one or two times. By only knowing how to remove hair, no matter if by FUE or FUT, we put our patients at risk and also our specialty. Education is the key. Education means many actions, but one of the most important ones for a hair doctor is: Do attend the ISHRS World Congress! Do attend meetings!

With all that in mind, we are planning a program that will contemplate the basic, intermediate, and the advanced levels. I just came back from Miami where I attended the 9th World Congress of Hair Research with some of our ISHRS colleagues and we saw fabulous presentations by world-renowned researchers who we could meet in person to invite them to Panama for our Hair Biology Lectures.

We will meet this year in Panama in a fantastic venue by the beach, the Westin Playa Bonita Hotel. I pretty much like the resort format for meetings because I think that it provides an intimate atmosphere with close contact with our old friends and more time to meet new ones. I will plan to stay some more days before or after the meeting in order to explore some Panama attractions. There are famous restaurants in the city just minutes away from our hotel, but in case you prefer to stay, the Westin

Playa Bonita Hotel has 6 restaurants. The venue we have selected is for sure one of the best hotels in our meeting's history. I ask you again to check it out for yourself at the hotel's website: http://www.starwoodhotels.com/westin/property/



Our 2016 World Congress Scientific Planning Committee is assessing the Chicago meeting feedback, and we are using it to form a preliminary basis for our program.

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As I have already said, our scientific programs have been historically recognized as excellent ones, and we will make all efforts to maintain our quality level, always thinking of improving it. You will make the difference—again or for the first time. I do ask you to take an active part. I do ask you to participate and send your abstracts. All abstracts will be rated blindly by the Congress Scientific Committee. Our submission deadline will be briefly informed. Don't underestimate your ideas, findings, tools, or innovations, no matter your skill level. There is a whole world out there that wants to learn from you. And I am one of them. See you here in our next issue! •



# Message from the 2016 Surgical Assistants Program Chair

Sara Roberts Manchester, UK Sara@farjo.com

Happy New Year! I hope that you all had time to rest and reflect over the festive period.

I certainly have and in doing so have had time to collate feedback and begin working on the plans for this year's meeting in

Panama. I am aiming to cover topics for all levels of Surgical Assistants starting with the basics and building on this to create a programme that has something for all, so whether you're beginning in this field or have numerous years

of experience, I hope to deliver a meeting that is not only exciting but valuable.

I plan to include topics that encourage discussion and participation from all,









so please forward me all of your ideas and suggestions for how I can make this happen. I also welcome anyone who wishes to present at the meeting to contact me directly at Sara@farjo.com. •



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- Employ the different methodologies and instrumentation for FUE.
- Discuss the advantages and disadvantages of each type of device.
- Understand the basic aspects of FUE with these devices in order to successfully and safely perform this procedure.

Faculty and devices: Faculty list to be announced at a later date. The devices to be available are the powered SAFE System, the CDD-Vortex, several motorized sharp punch systems, and the ARTAS System robot. There will also be a hands-on lab with skin tissue models for those attendees who do not have a United States medical license.

Registration: Registration will open in December. Details will be available at www.ishrs.org./content/educational-offerings. To be placed on the mailing list for first opportunity to register, send your contact details to jlmccasky@hsccolorado.com.

Questions: Contact Janiece McCasky at jlmccasky@hsccolorado.com.

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#### **GENERAL SESSIONS**

- FUE Follicle Unit Extraction
- FUT Follicle Unit Transplantation
- · Hairline Design
- The Future of Hair Transplantation
- · Advances in Hair Biology
- Unique Issues in Ethnic Transplantation
- Small Group Discussion Tables on a Variety of Topics
- Storage Solutions
- Non-Surgical Adjunct Therapies
- · Live Patient Viewing
- · Surgical Pearls to Achieve the Best Results

#### **OTHER OFFERINGS**

- · Lunch Symposia and Small Group Workshops
- · Basics in Hair Restoration Surgery Course
- · Advanced/Review Course
- Surgical Assistants Program
- M&M Conference
- · Exhibits Program
- E-Posters
- · Networking Opportunities

### **NEWCOMERS ARE WELCOME!**

We offer a "Meeting Newcomers Program" to orient those who are new to the ISHRS 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 congress.

# 2016 ISHRS WORLD CONGRESS SCIENTIFIC PLANNING COMMITTEE

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All Waters Unite at the Science and Art Canal

The ISHRS's World Congress is the premiere meeting of hair transplant surgeons and their surgical staff. You don't want to miss it.

Call for Abstracts

Submission site scheduled to open in January 2016



303 West State Street, Geneva, IL 60134 | Tel 630 262 5399 or 800 444 2737 | Fax 630 262 1520 www.ISHRS.org/AnnualMeeting.html | info@ishrs.org | www.ISHRS.org

### HAIR TRANSPLANT FORUM INTERNATIONAL

**International Society of Hair Restoration Surgery** 303 West State Street Geneva, IL 60134 USA

Forwarding and Return Postage Guaranteed

Dates and locations for future World Congresses of the ISHRS

2016: 24th World Congress October 19-22, 2016 Panama City, Panama

2017: 25th World Congress October 4-8, 2017 Prague, Czech Republic

2018: 26th World Congress October 2018 USA (tentative)

2019: 27th World Congress November 13-17, 2019 Bangkok, Thailand (tentative) Presorted
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# Advancing the art and science of hair restoration

# **Upcoming Events**

Date(s)	Event/Venue	Sponsoring Organization(s)	Contact Information
February 16-19, 2016 & May 24-27, 2016	University Diploma of Scalp Pathology and Surgery Paris, France	University of Paris VI Coordinators: P. Bouhanna, MD and M. Divaris, MD www.hair-surgery-diploma-paris.com	Dr. Pierre Bouhanna, Course Director sylvie.gaillard@upmc.fr
April 1-3, 2016	ISHRS FUE Workshop: Istanbul 2016 Istanbul, Turkey	International Society of Hair Restoration Surgery in Hosted by O. Tayfun Oguzloglu, MD	ufo@ishrsfueworkshopistanbul2016.com http://www.ishrsfueworkshopistan- bul2016.com/
May 5-7, 2016	ISHRS Regional Workshop Surgical Assistant Training Program: Graft Preparation and Placement (FU-strip & FUE) Denver, Colorado, USA	International Society of Hair Restoration Surgery Hosted by James A. Harris, MD, FISHRS Workshop Chairs: Tina Lardner & Emina Karamanovski Van	Janiece McCasky jlmccasky@hsccolorado.com ce
May 28-29, 2016	International Congress of the KSHRS, 2016 Seoul, Korea	Korean Society of Hair Restoration Surgery www.koreanhair.or.kr	Dr. Tommy Hwang, Program Chair kshrs@naver.com
June 10-12, 2016	ISHRS Regional Workshop European Hair Transplant Workshop <i>Manchester, UK</i>	International Society of Hair Restoration Surgery Hosted by Bessam Farjo, MBChB, FISHRS www.ishrs.org	www.hairtransplantworkshop.com
July 29-30, 2016	2016 FUE Palooza Denver, Colorado, USA	International Society of Hair Restoration Surgery Hosted by James A. Harris, MD, FISHRS www.ishrs.org	Janiece McCasky jlmccasky@hsccolorado.com
August 24-27, 2016	6th Annual Congress of Brazilian Association for Hair Restoration (ABCRC) Curitiba, Brazil	Brazilian Association for Hair Restoration Surgery (ABCRC http://www.abcrc.com.br/	e) secretaria@abcrc.com.br
September 8-11, 2016	8th 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 ISHRS	Dr. Samuel L. Lam, Course Director Emina Karamanovski Vance, Assistant Course Director http://pa.slu.edu
October 19-22, 2016	24th World Congress of the International Society of Hair Restoration Surgery Panama City, Panama	International Society of Hair Restoration Surgery www.ishrs.org	Tel: 1-630-262-5399 Fax: 1-630-262-1520 info@ishrs.org
November 26-27, 2016	21st Annual Meeting of the JSCHR Hamagin Hall, Yokohama, Japan	Japan Society of Clinical Hair Restoration (JSCHR) Hosted by Prof. Kazuo Kishi, MD	Prof. Kazuo Kishi, MD, Program Chair Maiko Kuroda, Secretary