

IN THIS ISSUE

Rapid and Accurate
Digital Measurement
of the Recipient Area
in Hair Transplantation
Using a Tablet
Application

Review of the 27th
World Congress

The Other Side of the Coin: Adverse Effects of Hair Cosmetics

Macías-Alonso Begoña, MD | Zapopan, Jalisco | bmaciasalonso@gmail.com; Travis Frantz, BS | Winston-Salem, North Carolina, USA; Amy J. McMichael, MD | Winston-Salem, North Carolina, USA

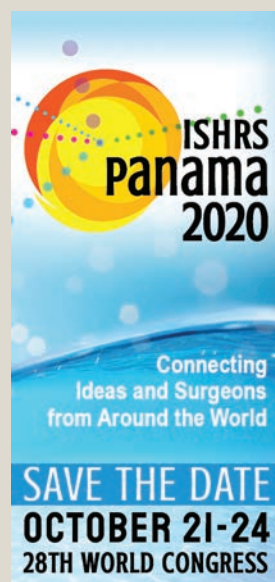
INTRODUCTION

Since ancient times, hair has played an important role in the life of human beings. Throughout history, it has been a factor that, in a certain way, has given a sense of identity, personality, and even a sign of belonging to certain groups; it is currently considered an element that manifests health and contributes to the individual's attractiveness. That is why, over the years, different types of hair cosmetics have been developed to help improve the appearance of hair, camouflage hair loss, and optimize the appearance of hair shafts. But hair cosmetics may also be the source of hair loss and breakage when used improperly or to excess. To achieve successful results, there must be a balance in their use where damage does not exceed both the durability of hair and the replacement of fibers. Therefore, the key is to choose the correct hair cosmetic for the individual; the elements that must be considered include the following: genetic hair abnormalities, race, age, level of baseline hair shaft damage, brushing habits, scalp health, frequency of hair washing, and style choices.

Hair cosmetics include the following (see Table 1):

- Shampoos that can be classified into conditioning, sulfate free, for oily hair or dry hair
- Conditioners that can be instant, deep, leave in, or rinse off
- Chemical straighteners that may be lye based, no lye, ammonium thioglycolate, or Brazilian keratin
- Dyes that are divided into bleach, permanent, demi-permanent, semi-permanent, and temporary
- Oils, butters, and sprays
- Braids, weaves, and extensions

➤ PAGE 223



<https://www.ishrs-hforum.org/>

A look back at the 27th World Congress of the ISHRS. Bangkok, Thailand November 13-16, 2019

Begins on page 239.

TABLE OF CONTENTS

219	President's Message
220	Co-editors' Messages
221	Notes from the Editor Emeritus: Dr. Nilofer Farjo
227	Literature Review
228	Rapid and Accurate Digital Measurement of the Recipient Area in Hair Transplantation Using a Tablet Application
230	Warning from the Medical Board of California: Hair Restoration Surgery Requires a Medical License
232	Hair's the Question: Common Post-Op Symptoms
236	Medical and Professional Ethics: Spotlight on Guarantees and Assurances
239	Meeting Review: 27th World Congress of the ISHRS
252	Regional Society Profile: Arab Association for Hair Transplantation
256	Classified Ads
257	Calendar of Events

HAIR TRANSPLANT FORUM INTERNATIONAL

is published bi-monthly by the
International Society of Hair Restoration Surgery

First-class postage paid Milwaukee, WI and
additional mailing offices.

POSTMASTER Send address changes to:

Hair Transplant Forum International
International Society of Hair Restoration Surgery
1932 S. Halsted St., Suite 413
Chicago, IL 60608 USA
Telephone 1-630-262-5399
U.S. Domestic Toll Free 1-800-444-2737
Fax 1-630-262-1520

President	Francisco Jimenez, MD, FISHRS president@ishrs.org
Executive Director	Victoria Ceh, MPA vceh@ishrs.org
Editors	Andreas M. Finner, MD, FISHRS Bradley R. Wolf, MD, FISHRS forumeditors@ishrs.org
Managing Editor & Advertising Sales	Cheryl Duckler, 1-262-643-4212 cduckler@ishrs.org
Controversies	Russell G. Knudsen, MBBS, FISHRS
Cyberspace Chat	Robin Unger, MD
Hair's the Question	Sara M. Wasserbauer, MD, FISHRS
Hair Sciences	Vlad Ratushny, MD, PhD
How I Do It	Timothy Carman, MD, FISHRS
Literature Review	Aditya K. Gupta, MD, PhD, FISHRS Nicole E. Rogers, MD, FISHRS
Medical & Professional Ethics	Gregory Williams, MBBS, FISHRS
Meeting Review	Rachael Kay, MD

The views expressed herein are those of the individual author and are not necessarily those of the International Society of Hair Restoration Surgery (ISHRS), its officers, directors, or staff. Information included herein is not medical advice and is not intended to replace the considered judgment of a practitioner with respect to particular patients, procedures, or practices. All authors have been asked to disclose any and all interests they have in an instrument, pharmaceutical, cosmeceutical, or similar device referenced in, or otherwise potentially impacted by, an article. ISHRS makes no attempt to validate the sufficiency of such disclosures and makes no warranty, guarantee, or other representation, express or implied, with respect to the accuracy or sufficiency of any information provided. To the extent permissible under applicable laws, ISHRS specifically disclaims responsibility for any injury and/or damage to persons or property as a result of an author's statements or materials or the use or operation of any ideas, instructions, procedures, products, methods, or dosages contained herein. Moreover, the publication of an advertisement does not constitute on the part of

ISHRS a guaranty or endorsement of the quality or value of the advertised product or service or of any of the representations or claims made by the advertiser.

Hair Transplant Forum International is a privately published newsletter of the International Society of Hair Restoration Surgery. Its contents are solely the opinions of the authors and are not formally "peer reviewed" before publication. To facilitate the free exchange of information, a less stringent standard is employed to evaluate the scientific accuracy of the letters and articles published in the Forum. The standard of proof required for letters and articles is not to be compared with that of formal medical journals. The newsletter was designed to be and continues to be a printed forum where specialists and beginners in hair restoration techniques can exchange thoughts, experiences, opinions, and pilot studies on all matters relating to hair restoration. The contents of this publication are not to be quoted without the above disclaimer.

The material published in the Forum is copyrighted and may not be utilized in any form without the express written consent of the Editor(s).

Copyright © 2019 by the
International Society of Hair Restoration Surgery,
1932 S. Halsted St., Suite 413
Chicago, IL 60608 USA

Printed in the USA.



Official Publication of the
International Society of Hair Restoration Surgery



President's Message

Francisco Jimenez, MD, FISHRS | Gran Canaria, Canary Islands, Spain | president@ishrs.org

Dear ISHRS colleagues,
I would like to thank the Board of Governors for their confidence in proposing me to be ISHRS president and all the ISHRS members for giving me this opportunity. I am more than honored to serve this coming year as ISHRS president and I can assure you that I will do my utmost to try to continue the fine work of the previous holders of this position.

My predecessor, Arthur Tykocinski (Brazil), was the prime mover in setting up the Black Market (now called the Fight the FIGHT—Fraudulent, Illicit & Global Hair Transplants) campaign last November. The primary goal of this campaign, which is still in its early stages, is to educate the general public and raise awareness of what is happening in our field today in relation to the employment of illegal practices such as the use of technicians to perform hair transplant surgery. This is the time for members to share the contents that we have generated for this campaign. There are many ways that you can contribute: by sharing our posts in your social media networks, by giving talks to your medical colleagues about the dangers of the black market, by recording testimonies from patients who have been deceived by misleading information and have major regrets about the surgical treatment they received in these so-called “clinics,” etc. On occasion, members may not be fully aware of what happens behind the scenes, and for this reason I would like to take this opportunity to acknowledge the efforts of a group of people who have spent countless hours making this campaign possible: Drs. Ricardo Mejia, Sharon Keene, Ken Washenik, and Konstantinos Anastassakis; Blanca Stella Mejia (ISHRS Integrated Communications Manager); Victoria Ceh (ISHRS Executive Director); Joe Tillman; and Ryan Saniuk, the person responsible for the creative and strategic planning of the campaign.

My first decision as president has been to renew the composition of the different ISHRS committees. We are always happy to welcome new faces and hence have incorporated numerous members who have expressed an interest in forming part of the different committees in our previous calls for volunteers. One rule we have established (another initiative from Arthur) is that any one member can only form part of two committees at the same time, thus freeing up more spots for new members willing to contribute to the ISHRS. I would like to give a special mention here in recognition of one member who our society feels very much in debt to. His name is Dr. Paul Cotterill (Canada), and he has served for 17 years as an excellent Chair of the CME (Continual Medical Education) Committee.

The Hair Transplant Forum Editorial Board has also been renewed. I would like to express my appreciation for the excellent work of Drs. Andreas Finner (Germany) and Brad Wolf (USA) during these past three years. They have incorporated new people and new columns, and have carried out their work in accordance with the high standards of quality of our journal. I know, as a past *Forum* editor, how much work is required and how much priceless time has to be devoted to this task. Thank you. I would also like to acknowledge the sterling efforts of Dr. Bob True (USA), who has been the main driving force behind the e-Pub, which provides easy online access to all *Forum* articles from the archives.

A new team is now coming on board led by Drs. Jeffrey Epstein (USA) and Aditya Gupta (Canada). They are both experienced scientific writers and are well versed in the skills required to manage and review scientific publications. I commend all members who submit papers to the *Forum* because without your submissions and interest this journal simply would not exist. We are in excellent hands, and I wish Jeff and Aditya the very best of success during their 3-year term as *Forum* co-editors. ■

Please Join the ISHRS Annual Giving Fund and help in our Fight the FIGHT campaign with a donation! It is crucial that we have member support. Please make a donation to help support the battle against the unlicensed practice of medicine. To donate to the Fight the FIGHT campaign, go to:

<https://ishrs.org/make-a-donation/>

Co-editors' Messages

Andreas M. Finner, MD, FISHRS |
Berlin, Germany |
forumeditors@ishrs.org

The last issue of 2019 features a report from the successful 27th World Congress and Live Surgery Workshop in Bangkok. The meeting provided a great platform to share ideas and present the latest innovations in hair restoration surgery and medicine.

The article by Macías-Alonso Begoña et al. will help us to counsel our patients about hair care practices. Pasu Piamphongsant et al. introduce a practical and accurate method to measure the recipient area. This technique and app could also be used to measure the donor area or even for the follow-up of scarring and frontal fibrosing alopecia.

During my term as co-editor, there has been a tremendous refinement in hair surgery. Hair transplantation has become more and more popular around the world. However, the number of low-quality, assembly-line hair transplants performed every day now exceeds the number of individually crafted hair transplants done by ethical surgeons. Many patients operated on by non-physicians present with suboptimal results creating a bad public impression of hair transplants in general. This is especially true since well-done hair transplants are virtually undetectable and therefore hard to recognize.

Patients usually do not ask around to find a hair transplant doctor. The internet has become the main source of information. The marketing power of the shadow market is immense. In this situation, what we can do is perform and present quality surgery, unite our voices and show that not all hair transplants are the same. We need to spread our message: a long-term plan, experience, and surgical skills are essential to achieve a natural hair restoration.

It has been a pleasure and honor to be co-editor of the *Forum*. I would like to thank all columnists, authors, my co-editor Bradley Wolf, and especially Cheryl Duckler and Victoria Ceh for their great contributions and support. In my view, it would be nice to have more active participation and lively discussion between members. Maybe the FORUM ePUB will help to create interactions.

Handing the baton to Aditya Gupta and Jeffrey Epstein, I wish them a successful term. ■



Bradley R. Wolf, MD, FISHRS |
Cincinnati, Ohio, USA |
forumeditors@ishrs.org

What a great meeting in Bangkok! Congratulations to Robin Unger and the ISHRS staff who were busy keeping all the moving parts of the largest ISHRS meeting ever flowing seamlessly. In most meetings, there are “dead spots,” periods within the

general session that aren't particularly interesting or pertinent. Not in Bangkok. The mix of lectures was excellent and engaging. Compliments also go to our president, Arthur Tykocinski, as well as Kapil Dua, Ken Williams, Damkerng Pathomvanich, and Timothy Carman for their well-organized and wildly popular live surgery workshop.

In my early years, I would only start thinking about ideas for lectures after the call for abstracts, then the deadline would pass before I could organize my thoughts and submit an abstract. I realized that during the meetings my mind was opened and stimulated making it an excellent time to start plotting my ideas for abstracts to submit for the next meeting well in advance of the deadline. Now is a good time for all members to use the topics and enthusiasm from Bangkok as a springboard for ideas to turn into abstracts for Panama. As Program Chair for Panama 2020, I urge you to submit your abstracts; call for abstracts begins in January. Get up to the podium and give a lecture.

I can't believe our three-year term as co-editors has come to an end. It has been the quickest three years of my life. I remember watching the previous co-editors, Bob True and Mario Marzola, accept their awards in Las Vegas wondering what it would be like to be in that position. Now I know. It's a great feeling of accomplishment! It has been a privilege to work with so many ISHRS members and staff who have been available, cordial, and willing to contribute. To me, editing an issue is a lot like performing hair transplantation. The patient's donor is taken apart, often trimmed and cleaned up, then put back together, much like a puzzle. Similarly, after the articles are submitted, they are examined word for word, cleaned up, and reconstructed. And I know I did some major reconstruction. Thanks for putting up with my neurotic quest to make all articles grammatically correct, crystal clear, and unambiguous.

Thanks to Andreas Finner who's no-nonsense approach to content and editing made working with him a pleasure. Thanks to our magical managing editor, Cheryl Duckler, who puts all the pieces together to make an issue every two months, and to Victoria Ceh, who has the uncanny ability to find mistakes everyone missed after multiple read-throughs. Thanks also to the columnists and all who submitted content. I'll miss all the activity and exciting exchange of emails in the rush to meet the deadline with each issue, and I'll miss the unique feeling of seeing the final version in print. Good luck to our successors, Aditya Gupta and Jeff Epstein. ■



Notes from the Editor Emeritus, 2011–2013

Nilofer Farjo, MBChB, FISHRS | Manchester, UK | dr.nilofer@farjo.com

The Good, the Bad, the Ugly¹ and a Pair of Wellies

My writing style these days is usually of a scientific nature and perhaps a bit boring for those without a scientific inclination. Luckily, scientific research into hair follicle biology is making great leaps forward so instead of writing about a recent collaboration—"Inhibition of ATP binding cassette transporter B1 sensitises human hair follicles to chemotherapy-induced damage"²—as I can hear the yawns already, here, I will write on a lighter but no less serious note.

We all have amusing stories from our careers, so I'll begin with one that I remember from Ireland. As a medical student rotating through general surgery in a country hospital, I attended a splenectomy where the rather gruff surgeon flung the removed spleen across the operating table in the general direction of a kidney dish. Luckily, I moved out of the way in time! That was the Good (dodging the spleen) in the Bad (poor surgical behavior) that could have turned Ugly (if I hadn't moved in time).

This film to which my title refers takes place during the American civil war where "two men, Blondie and Tucco, form an uncomfortable alliance while looking for treasure. They must also outwit Angel Eyes, an outlaw who wants to plunder the riches for himself." More than 50 years has gone by and the title has become a popular phrase in Western culture. The Fight the FIGHT campaign is attempting to fight the Ugly, but I want to discuss the Good.

In the December ISHRS email newsletter, our new president called members to action to get involved with new ideas. All too often people talk about the "ISHRS" as though it's some untouchable thing but, in fact, as members we are all the "ISHRS," so we all should be directing the future of the society. So, getting back to my scientific inclinations, as I lied above about giving research a miss in this article, you will be hearing more from the Scientific Research Grants and Awards Committee in the near future as we need more members to get involved in studies. However, these studies need to be meaningful, and though perhaps not robust enough to be accepted for publication in high-impact journals, they do need to be well constructed.

Now let's get back to the Good. Over the past 37 years, I have been fortunate enough to have worked with and met colleagues from around the world. This started in medical school in Dublin where the class was two-thirds non-Irish, and continued with my membership in the ISHRS in 1994, which at the time had a predominantly American membership but today has expanded so that now my friends come from all corners of the globe. It was wonderful to see such high attendance in Bangkok that included many newcomers especially from the Far East. I met several very enthusiastic and delightful people at the Newcomers session.

Two great colleagues who I met early on in my hair career are Henry Clamp, the first BAHRS president, and Richard Shiell from Australia. My dealings with Henry began as a competitor but quickly moved on to a working relationship in both the BAHRS and in surgical partnership. Henry was the one who taught me the bilateral scalp lift, which was popular at the time when scalp reductions were still around. Henry's wife, Audrey, was his able assistant throughout but especially during the mini-/micro-grafting era.

My friend and great mentor, Richard Shiell is a true guiding light who taught me humility and hard work. Richard was the one who trained the British surgeons at one of the biggest companies in the UK. The company still exists today, but sadly their hair division recently closed down in favor of general cosmetic surgery.

With Henry's full retirement now that he is in his eighties, I have asked Richard Shiell to write a few words. That's where the Wellies come in.³ Although Henry retired from surgical practise a few years ago, he remained active in the field until this year. As an Honorary member of the BAHRS, he attended the occasional meeting and acted as a very valuable expert witness in hair-related complaint cases in the UK.

Richard C. Shiell, MBBS | Melbourne, Australia

I have been asked to write a few words on the retirement of my colleague and friend, Dr. Henry Clamp, who I have known for 40 years. I first met Henry at an American Hair Transplant meeting in 1979. I was surprised to hear an English voice at the meeting as there were very few English doctors in the field at that time and I thought that I knew them all. Henry was tall and confident and had already gained some years of hair transplant experience in the Midlands of England.

I met him again a year or two later when he was recruited by the British "Transform" Clinic to run their new Birmingham Office. It was July in the Midlands and Henry was in his summer operating gear in the operating room, which had no air-conditioning. This consisted of short pants (short trousers, not underwear as we call pants in the UK), long white gumboots (Wellies), and his hairy bare chest covered by a white plastic apron and bib. It did not look particularly "professional," but it was certainly practical and Henry was a practical man.

I visited Henry's home near Tamworth, Staffordshire, several times. His children were grown and had flown the nest, and he and wife Audrey were always great hosts complete with home cooking and a variety of home-brewed beers and wines. In addition to Elderberry wine, he had another vintage made with used tea-bags that was quite tasty! One

of his many hobbies was to train falcons for hunting small game and he also had a number of fox-hounds in keeping with his role as Master of the local Hunt Club.

Henry was already quite experienced at the 4mm punch-graft technique and quickly became adept at “scalp reduction,” which I had introduced to the Transform Clinic from the surgeons of the Bosley Group in Beverly Hills, California. This technique had been developed independently in 1978 by Canadians Martin Unger of Toronto and the Blanchard Brothers of Montreal. It was a simple surgical procedure but appeared a little gruesome to a first observer, and in hot weather blood loss could be considerable. Hence, Henry’s protective operating gear.

The procedure was enormously popular with patients and surgeons for a few years as a bald area of up to 40 square centimetres could be removed in an operation lasting no more than 30 minutes. Smaller procedures could be repeated at intervals of three months and large areas of baldness completely eliminated. The procedure gradually fell out of favour with surgeons because there was considerable “stretch-back” of up to 50% of the remaining bald area between procedures, and even after removal of all the baldness, the residual central scar was very difficult to conceal with subsequent hair styling. Sophisticated procedures, such as Frechet’s Triple Flap, were developed in the early 1990s to disguise the central slot, but at the same time follicular unit surgery under magnification was being developed by Bobby Limmer and others in the United States, and the superior cosmetic results gradually led to the abandonment of all other procedures.



Henry and Audrey were avid travellers and attended many hair meetings in Canada and the United States. They also ventured south of the Equator for meetings in Bali and Australia where Henry’s jovial nature and good head for the local brew made him a popular figure (see photo).

I wish them well in retirement.

Editor’s note: A personal thank you to Richard Shiell who never says NO! —NF

References

1. “The Good, the Bad and the Ugly” (Italian: *Il buono, il brutto, il cattivo*) is a 1966 Italian epic Spaghetti Western film directed by Sergio Leone and starring Clint Eastwood as “the Good,” Lee Van Cleef as “the Bad,” and Eli Wallach as “the Ugly.”
2. Smart, E., et al. Inhibition of ATP binding cassette transporter B1 sensitises human hair follicles to chemotherapy-induced damage. *J Dermatol Sci.* 2019(Jul); 95(1):44-47. doi: 10.1016/j.jderm-sci.2019.06.003. Epub 2019 Jun 14.
3. Wikipaedia: “Wellies”: The Wellington boot was originally a type of leather boot adapted from Hessian boots. They were worn and popularised by Arthur Wellesley, 1st Duke of Wellington. The “Wellington” boot became a staple of practical foot wear for the British aristocracy and middle class in the early 19th century. The name was subsequently given to waterproof boots made of rubber and they are no longer associated with a particular class. In Australia, the boots are called “gumboots” meaning made from the rubber tree “gum” or sap. They are now commonly used for a range of agricultural and outdoors pursuits. ■





WAW — FUE INSTRUMENTS

Small punch size with funnel shape and perpendicular cutting edge for deeper dissection.

NEW punch graduation system for very precise depth control.

Lower speed and oscillatory motion that mimic manual work for:

- Fewer missing grafts*
- Much lower transection rate*
- Higher number of hairs per graft*

A substantial savings: use the punch during two to three surgeries!

Already adopted by more than one hundred surgeons worldwide!

*user dependent

+32 2 880 70 64
info@waw-fue.com
www.waw-fue.com

Simply Efficient



Hybrid
tornado
punch & foot
pedal



devroye instruments

TABLE 1. Common Hair Cosmetics

Agent	Desired Effect	Mechanism of Action	Possible Adverse Effects
Shampoo	Scalp cleanser	Surfactants bind oil and dirt particles then are rinsed away	Contact dermatitis
Conditioner	Reduce tangling and frizz, improve combability	Neutralize negative charge and improve hair hydrophobicity	Allergy to fragrance
Chemical straighteners	Straightening of hair	Chemical interaction with keratin alters molecular bonds	Hair damage/breakage, scalp burns
Bleach	Removal of hair pigment	Chemical interaction with melanin	Hair damage/breakage, contact or irritant dermatitis
Dyes	Changing the color of hair	Addition of pigment in cortex or cuticle depending on type	Hair damage/breakage, contact or irritant dermatitis
Oils and butter	Lubrication, water sealant, split end reduction	Coats hair fiber, may penetrate depending on product	Scalp irritant

SHAMPOOS

A shampoo is designed to remove sebum, eccrine sweat, apocrine sweat, fungal elements, desquamated corneocytes, styling products, and environmental dirt from the scalp and hair. The main goal of a shampoo is to maintain scalp hygiene while beautifying the hair. If shampoos have high detergent properties, they can remove the outer cuticle of the hair shaft that makes the hair curly, opaque, and difficult to untangle. Some shampoos are known to cause contact dermatitis. Common allergens include cocamidopropyl betaine, methylchloroisothiazolinone, formaldehyde-releasing preservatives, propylene glycol, Vitamin E (tocopherol), parabens, and benzophenones.¹

One of the main components of shampoos is surfactants. These agents reduce the surface tension between water and dirt, thus facilitating the removal of environmental dirt from the hair and scalp. They are classified into four groups: anionic, cationic, amphoteric, and nonionic.² Traditional soap, which is an anionic detergent, leaves an alkaline residue that precipitates in the form of calcium salts and accumulates in the hair leaving it opaque and brittle. Also, it can cause irritation of the skin and mucous membranes.^{1,2} The new anionic surfactants (alkyl sulfates, alkyl ether sulfates) do not cause these effects. Anionic surfactants such as ammonium lauryl sulfate, sodium laureth sulfate, sodium lauryl sarcosinate, sodium myreth sulfate, sodium pareth sulfate, sodium stearte, sodium lauryl sulfate, alpha-olefin sulfonate, and ammonium laureth sulfate can increase frizz and friction on hair. Cationic surfactants such as trimethylalkylammonium chlorides and the chlorides or bromides of benzalkonium and alkylpyridinium ions are softener agents.¹

Of the hair cosmetics noted above, those that have been most frequently associated with severe hair damage are chemical straighteners, bleaches, and dyes.

CHEMICAL STRAIGHTENERS

Hair can be permanently straightened with chemical relaxers. Hydroxide based formulations (lye or no lye) or ammonium thioglycolate are commonly employed agents. Although different, they have similar mechanisms of action. The reagent can be mixed with emulsifiers that create a thick viscous consistency that enhances application of the product. The alkalinity of the solution (compared to pH of hair, 4.5-5.5) causes swelling of the hair shaft, opening keratinocyte scales that comprise the cuticle. This facilitates penetration of the chemicals to the endocuticle, cortex, and

keratin. In subsequent reactions, molecular bonds are broken and some are remodeled, particularly disulfide bonds. This denatures the hair proteins, causing the hair strand to become flexible and stretched.⁴

Hydroxide relaxers include lye (sodium hydroxide) and non-lye relaxers (lithium, potassium, or guanidine hydroxide) that can straighten hair without the use of a hot iron. Lye has a pH range of

12-14 and can be effective in as little as 20 minutes, making it an efficient choice for salon professionals. No-lye relaxers are considered gentler because their pH is generally 9-11, making them more suitable for clients with sensitive scalps.

Ammonium thioglycolate, or "thio relaxer," typically has a pH around 10 that acts as a reducing agent that weakens the cysteine bonds of keratin. During processing, a hot iron is required to straighten the hair followed by an oxidizing solution of hydrogen peroxide or sodium bromate, which reforms disulfide bonds in the new desired configuration. This technique is known as "thermal reconditioning" or "Japanese hair straightening."

Alkaline agents (including permanent dyes) can remove the mono-molecular layer of fatty acids covalently bound to the cuticle, including 18-methyl eicosanoic acid (18-MEA), which is important to prevent penetration of water into the hair shaft. Without 18-MEA's protective seal, high protein loss can occur and is most likely to cause catastrophic damage.¹

Chemical relaxers weaken the hair shaft and decrease tensile strength. Hair breakage/loss, dry or coarse hair, dry scalp, color change, burning sensation during the application, alopecia, and also nail damage have been reported.^{3,5} Hydroxide and thio relaxers should not be used interchangeably or with bleached hair. Overlapping these chemicals or use in conjunction with bleached hair can cause extreme damage or breakage. To minimize damage, it is recommended to have hair relaxed infrequently by a professional.

BRAZILIAN KERATIN TREATMENT (BKT)

BKTs are keratin- and aldehyde-based treatments used to straighten hair and make it more lustrous. Unlike other straighteners, BKT can be applied to already relaxed, bleached, or dyed hair, and hair damaged by braids or weaves. Traditional BKT solutions made popular in the early 2000s contain hydrolyzed keratin and formaldehyde or its derivatives, formalin or methylene glycol. The solution diffuses into the cortex of the hair shaft where a functional aldehyde group acts as a cross-linking agent between the hydrolyzed keratin and hair keratin. Application of heat to hair via blow drying or use of a hot iron enhances the cross-linking with the amino acids that form the hydrolyzed keratin (arginine, lysine, tyrosine, histidine, and the amide derivatives of aspartate and glutamate).^{6,7} It is proposed that the diffusion of hydrolyzed keratin crossed-linked with hair keratin fills in the defects and restructures the hair shaft.^{7,8} This produces a straight style lasting about 3 months.

Non-formaldehyde-containing keratin straightening products, also known as safe keratin treatments, have recently been introduced to the market. The main ingredients in these straighteners are hydrolyzed keratins with a combination of glyoxyloyl carbocysteine, glyoxyloyl keratin amino acids, silicone derivatives, and fatty acids. The mechanism of action is similar to traditional BKT. The effects of safe keratin products last about 4-6 months. It is important to note that while they are technically “formaldehyde-free,” the efficacy of the product is due to substrates that release formaldehyde or formation of a derivative functional aldehyde when heated with an iron or blow drying.^{1,9}

Application of BKT involves high temperature flat iron repeatedly applied to small amounts of hair, which can be damaging. If too much cross-linking between hydrolyzed keratin and hair keratin occurs, hair can become brittle and easier to break. Breakage is more likely in women with naturally curly hair where more cross-linking is needed to achieve straight style. The formaldehyde contained in these treatments has been associated with allergic skin reactions, difficulty breathing, and irritation of the respiratory tract, and is considered a carcinogen at high levels.^{7,9} Psoriasiform skin reactions, particularly in the scalp, have been attributed to the formaldehyde contained in Brazilian keratin solutions.⁶

COLORANTS

Colorants are classified according to their penetration and durability. They are divided into bleach, permanent, demi-permanent, semi-permanent, and temporary (Table 2). Significant hair damage associated with colorants is rarely from a single application but rather from repeated applications or over processing.

TABLE 2. Hair Coloring Treatments

Treatment	Duration	Chemicals	Mechanism	Adverse effects
Bleaching	Permanent until new growth	Hydrogen peroxide, ammonia	Alkaline pH causes hair fiber to swell, disrupts cuticle allowing reagents to penetrate the cortex Hydrogen peroxide oxidizes melanin, lightening hair color	Dull, brittle hair Allergic or irritant dermatitis Staining of the skin
Permanent colorant	Permanent until new growth	Hydrogen peroxide, ammonia, dye	Similar to bleaching with the added step of dye molecules depositing into the cortex	
Demi-permanent	12-24 shampoos	low concentration hydrogen peroxide, non-ammonia alkali, dye	Similar to permanent but to a lesser degree	
Semi-permanent	4-6 shampoos	mild non-ammonia alkali, dye	Small dye particles may penetrate into the cortex while larger dye molecules or polymers coat the cuticle	
Temporary	1-2 shampoos	dye	Large dye particles coat the cuticle	

Bleaches are the most destructive. There are two main types of hair bleaches: hydrogen-peroxide and zinc formaldehyde sulfoxylate bleaches. Hydrogen peroxide is more common and may also include ammonium persulfate as a “booster,” resulting in a more potent bleach. These have powder-activator-containing persulfate salts and silicates that combined with hydrogen peroxide lead to a final pH of 10. The high pH enables the reagent to reach the melanin within

the cortex of the hair shaft and significantly lighten the hair. When bleaches are used properly, they are well tolerated. Nevertheless, when their use is as frequent as every six to eight weeks, the ends of the fibers will have experienced a significantly more chemical and physical insult compared to the roots and there is increased protein loss. It has also been reported that its use can cause allergic or irritant contact dermatitis.¹⁰

Permanent colorants are the most popular dyes. They contain hydrogen peroxide concentrations that range from 3%-6% in a solution with dyes such as p-Phenylenediamine (PPD) or aminophenols. The solution is made alkaline with ammonia or ethanolamine for a desired pH of approximately 10, which enables the reagents to reach the cortex. Hydrogen peroxide oxidizes the melanin and couples dye precursors, small amino and hydroxy-substituted benzenes, to form colored molecules in the cortex. The color cannot be removed by shampooing; it resists high temperatures and exposure to light. The majority of the damage is caused secondary to exposure to the alkaline solution, which causes hair fiber swelling, cuticle disruption, and removal of 18 MEA rather than dye formation. The final result is an increased protein loss.³ It is recommended to choose a permanent dye with a color not too different and not much lighter than the original color of the hair to minimize damage.¹¹

Demi-permanent colorants are considered gentler on the hair than permanent colorants because they do not contain ammonia or ethanolamine and have a lower concentration of hydrogen peroxide (2%). The hydrogen peroxide, also known as a “developer,” is able to minimally distort the cuticle allowing the dye to deposit at a slightly deeper level than semi-permanent colorants. This results in increased resistance to shampooing, lasting 12-24 washes, and more damage than semi-permanent.^{10,12}

Semi-permanent and temporary colorants cause very little damage. These formulations are deposit only and do not contain ammonia, ethanolamine, or hydrogen peroxide. The color longevity is as short as 6-10 shampoos for semi-permanent and 1-2 for temporary colorants, making them less popular. These colorants are designed for use on natural, unbleached hair to cover gray, add highlights, or rid hair of unwanted tones. Based on the derivation of the dye, there are different types of semi-permanent colorants: textile dyes, vegetable dyes, and synthetic hair stains. These colorants are found in the market as shampoos and mousses that are applied to wet, freshly shampooed hair and rinsed.¹⁰

To minimize hair shaft damage, it must be determined which colorant is being used. It is recommended to use semi- or demi-permanent dyes and stop bleaching hair to prevent significant hair protein loss.

HEAT

Thermal devices such as irons, blow dryers, and hot air brushes are common cosmetic tools used for drying and styling hair. Heat is classified as a physical agent potentially capable of inducing hair damage. Thermal straightening with

or without chemical processes causes damage to the hair shaft. When heat is applied to hair, the microfibrils of the cortex, which are mainly formed of proteins, can denature changing the structure of hair components and this affects the mechanical properties of the fibers, such as strength and elasticity.¹³

Specifically, flat irons, ceramic irons, and curling irons can cause much more damage than blow dryers. Some authors have found that temperatures ranging from 175°-215°C for only 5 minutes of exposure are enough to cause hair damage. The amount of damage these devices cause is dependent on natural hair type, concomitant hair treatments, frequency of use, and temperature settings (not recommended above 175°C). The abuse of this tool can lead to trichorrhesis nodosa.¹⁴

Normally, the hair contains air-filled spaces that are called vacuoles. When high temperatures are applied to the hair fibers, the vaporization caused by heat can induce a forced expansion of the hair vacuoles turning the hair into a structure similar to a sponge. These damaged hairs are weak and brittle as the bubbles formed destroy the integrity of the fiber. This can result in twisted, stiff, and broken hairs.^{15,16}

OILS

For centuries, oils have been used for cosmetics purposes. They are mainly used for protecting hair from damage and also are thought to restore hair health. The oil can fill the gap between the cuticle cells and prevent the penetration of the aggressive substances.¹

Coconut oil, which reduces hair protein loss, is an effective hair lubricant and moisture sealant. It has a high affinity for hair proteins and penetrates the hair shaft but it is comedogenic.¹⁷

Jojoba oil works well to lightly coat the hair shaft and lubricate it. This type of oil has similar properties to sebum in lubricating hair shafts but can induce contact dermatitis.

Argan oil can be used to protect the integrity of the hair fiber during harsh chemical processes such as hair coloring; it also gives shine and lubrication to the hair shafts. The allergenicity of argan oil is rare, but reports of it do exist.

Castor oil is effective at lubricating and adding shine to hair shafts, as well as softening the hair. However, it is a known skin irritant and also has been documented to have caused acute hair felting in one case report.

Olive oil is effective at softening the hair, and providing lubrication and shine, but it's also a known skin irritant.

Tea tree oil is effective at soothing the scalp and improving dandruff, but given its irritating properties, it is best avoided.

Shea butter is a good emollient and can safely be used to lock in moisture in the hair shaft, but it should not be used for wet combing as this can cause damage to the hair shaft.

RECOMMENDATIONS FOR COSMETICS USE

Most cosmetics are safe when used as directed or by a salon professional. For most people, daily hair washing with conditioning shampoos containing low concentrations of anionic surfactants, followed by a moisturizing conditioner or use of 2-in-1 conditioners, is appropriate. Conditioners reduce negative static charge, friction, and frizz while

smoothing the cuticle, which increases shine. The silicone and proteins found in deep-conditioning formulations can temporarily strengthen hair fibers.

Damp-to-dry hair should be combed with wide set, blunt-tooth combs because wet hair is more elastic and subject to fracture; it is recommended to let hair air dry when possible. Avoid the use of flat irons or curling irons or use them as infrequently as possible and never use curling or flat irons on wet hair. If these tools are going to be used, it is crucial to keep the temperature below 175°C and to use heat protectant products on the hair before styling.¹⁴

People with Afro-ethnic or very curly hair may relax their hair to achieve otherwise impossible styles. The number of chemical treatments should be limited to 2-3 per year with the product applied to new growth at the roots by an experienced stylist. If applied with the wrong technique, scalp burns or hair breakage may result.

Hair that has been subjected to chemical treatments is more porous than virgin hair, which reduces the hair's ability to repel water. When the hair fiber gets wet, it swells. Repeated wetting and drying can be damaging. Oils and conditioners can be used to lubricate, restore hydrophobicity, and prevent breakage. Coconut oil has been found to reduce protein loss in damaged and undamaged hair.¹⁷

BKT is a relatively new hair management tool that is compatible with all other hair treatments. It can be used to straighten, reduce frizz, and increase shine. It is not uncommon for ethnic women to have their hair relaxed followed by BKT. Researching ingredients prior to use can help minimize exposure to formaldehyde.

Hair dyes are routinely used to camouflage gray or white hairs. Permanent colorants are considered to provide the best coverage. Demi-permanent colorants are also popular but do not cover gray and white as well because the dye is limited to the cuticle and is not permanent. If the desired style is relaxed and dyed, the relaxer treatment should be performed first to avoid color loss. Waiting 2-4 weeks before dyeing after a relaxer can reduce damage to the cuticle. Demi-permanent is the colorant of choice for relaxed hair because of its gentler mechanism of action.¹

References

1. Gavazzoni, D. Hair cosmetics: an overview. *Int J Trichology*. 2015; 7(1):1-15.
2. Cline, A., L.N. Uwakwe, A.J. McMichael. No sulfates, no parabens, and the "no-poo" method: a new patient perspective on common shampoo ingredients. *Cutis*. 2018; 101(1):22-26.
3. Cristina, S., M. Val. Protein loss in human hair from combination straightening and coloring treatments. *J Cosmet Dermatol*. 2015; 14:204-208.
4. Aryiku, S.A., et al. Clinical and anthropological perspectives on chemical relaxing of afro-textured hair. *Eur Acad Dermatol Venerol*. 2015; 29:1689-1695.
5. Swee, W., K.C. Klontz, and L.A. Lambert. A nationwide outbreak of alopecia associated with the use of a hair-relaxing formulation. *Arch Dermatol*. 2000; 136:1104-1108.
6. Gavazzoni-Dias, M.F.R., et al. Eczema-like psoriasiform skin reaction due to Brazilian keratin treatment. *Ski Appendage Disord*. 2016; 121:156-162.

7. Weathersby, C., A. McMichael. Brazilian keratin hair treatment: a review. *J Cosmet Dermatol*. 2013; 12:144-148.
8. Villa, A.L., et al. Feather keratin hydrolysates obtained from microbial keratinases: effect on hair fiber. *BMC Biotechnol*. 2013; 13(15):1-23.
9. Maneli, M.H., P. Smith, and N.P.K. Fcdern. Elevated formaldehyde concentration in "Brazilian keratin type" hair-straightening products: a cross-sectional study. *J Am Dermatol*. [Internet] 2013; 70(2):276-280. <http://dx.doi.org/10.1016/j.jaad.2013.10.023>
10. McMichael, A.J., and M.K. Hordinsky. Hair and Scalp Disorders, Second Edition. CRC Press: Taylor and Francis. Florida. 2018.
11. Draelos, Z.D. Hair care and dyeing. *Curr Probl Dermatol*. 2015; 47:121-127.
12. Aparecida da França, S., et al. Types of hair dye and their mechanisms of action. *Cosmetics*. 2015; 2:110-126.
13. Ribeiro de Castro Lima, C.R., et al. Heat-damaged evaluation of virgin hair. *J Cosmet Dermatol*. 2019; 9:1-8.
14. Mirmirani, P. Ceramic flat irons: improper use leading to acquired trichorrhexis nodosa. *J Am Acad Dermatol*. 2010; 62(1):145-147.
15. Brown, V.M., R.G. Crounse, and D.C. Abele. An unusual new hair shaft abnormality: "Bubble hair." *J Am Acad Dermatol*. 1986; 15(5):1113-1117.
16. Savitha, A., and T. Revathy. Bubble hair and other acquired hair shaft anomalies due to hot ironing on wet hair. *Int J Trichology*. 2011; 3(2):118-120.
17. Rele, A.S., and R.B. Mohile RB. Effect of mineral oil, sunflower oil, and coconut oil on prevention of hair damage. *J Cosmet Sci*. 2003; 54:175-192. ■

HypoThermosol®

The Optimized Hypothermic
Storage Solution Trusted
By Leading Hair Restoration
Professionals Worldwide

Join the growing list of hair restoration professionals
who trust ex vivo graft storage to HypoThermosol.

1.866.424.6543 BioLifeSolutions.com
info@biolifesolutions.com



Contact SalesOne@BioLifeSolutions.com
for Volume Discount Pricing





Literature Review

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

New Techniques for Raising Brows!

Miao, Y., et al. Margin of the frontal-temporal triangle area as a donor source for eyebrow

transplantation in Asians. *Dermatol Surg.* 2019; 45(12):1429-1432.

The surgical restoration of brows is imperfect given that the donor hairs when harvested from the mid-occipital scalp are generally stiffer and thicker than usual eyebrow hairs. They also grow continuously, which requires ongoing trimming every 2-3 weeks. Hair surgeons in China have come up with a way to improve the softness of transplanted brows. They suggest harvesting the softer hairs from the frontal-temporal triangle area (FTTA) via FUE, transplanting these (mostly single follicular units) into the brows, and then replacing the FUE donor sites in the FTTA with

thicker mid-occipital hairs. In this publication they present 10 patients (6 males and 4 females) who benefited from this technique between October 2016 and March 2017. In addition, they harvested from the nape of the neck, which also provides softer, more vellus hairs (as described by Umar in 2014). According to the authors, the downside of this technique is that hairs from the FTTA may eventually thin or fall out 3-5 years later. However, the authors contend that patients will not mind if, in the short term, their brows look more natural. They also argue that changes in brow trends suggest that patients may want different brow shapes later anyway.

Comment: While this technique is interesting it does seem like a lot of work to harvest hairs twice and have to transplant back into the original donor area. It also seems perilous to transplant hairs that may thin out over 3-5 years. The authors made no mention of topical minoxidil, but its application post-operatively may augment the brows' long-term retention. ■

Hair Loss in Chronic Graft vs. Host Disease

Marks, D.H., et al. Histologic and clinical cross-sectional study of chronic hair loss in patients with cutaneous chronic graft-versus-host disease. *J Am Acad Dermatol.* 2019; 81:1134-41.

Dermatologists at Harvard and the University of Virginia have been investigating the histologic and clinic characteristics of patients with graft-versus-host disease (GVHD) with particular attention to hair loss. They identified 17 adult hematopoietic cell transplantation (HCT) recipients with cutaneous GVHD (cGVHD). Punch biopsies of specimens were obtained from the scalp with clinical correlation and immunohistochemical staining and fluorescence in situ hybridization (FISH) analyses where indicated. Four patterns of hair loss were described:

1. Patchy nonscarring (41.2%)
2. Diffuse nonscarring (11.8%)
3. Diffuse sclerotic (11.8%)
4. Patchy sclerotic (5.9%)

On haematoxylin and eosin (H&E) staining, they found that the location of the inflammatory infiltrate correlated with the hair loss pattern seen clinically; cell populations were around the bulb for nonscarring hair loss and around the bulge for sclerotic cases. Interestingly, FISH studies in female cGVHD patients with male donors demonstrated green Y chromosomes in the area of the follicle affected by inflammatory cells.

Comment: As hair surgeons, we will not likely see many cases of chronic GVHD. However, this article helps better characterize the different types of hair loss seen in this condition and may make us feel more comfortable diagnosing such. There are also notable skin changes accompanying this type of hair loss including patchy hyperpigmentation and induration around the scalp, neck, and other affected areas. ■

Rapid and Accurate Digital Measurement of the Recipient Area in Hair Transplantation Using a Tablet Application

Pasu Piamphongsant, MD | Bangkok, Thailand | pasuoat@gmail.com; Damkerng Pathomvanich, MD, FACS | Bangkok, Thailand; Piyarat Piyadumrongkit, RN | Bangkok, Thailand; Tueboon Sriphojanart, MD | Bangkok, Thailand

ABSTRACT

Background: The recipient area measurement using grid counting is still a standard practiced by the majority of hair restoration surgeons. However, it is time-consuming and not quite accurate when the area is in different shapes such as a triangle, long and narrow shape, or circle.

Objective: We propose a digital recipient area measurement using a tablet application¹ instead of visual counting of the grids manually drawn by the refined Chang's method.

Method: Once the recipient area was drawn using the refined Chang's method,² we used an irregular area calculator application (SketchAndCalc). We then compared it with the refined Chang's method counted by two physicians and one nurse in 20 patients who visited the clinic for a consultation or pre-operative assessment.

Results: The analysis of both methods by Intraclass Correlation Coefficient (ICC) showed that the SketchAndCalc application has excellent reliability (ICC=1) equal to the refined Chang's method (ICC=0.99). However, when the measured area is long and narrow, the SketchAndCalc is more accurate and precise since it can record in decimal points.

Conclusion: The SketchAndCalc application is an easy, rapid, accurate method on a portable device for recipient area measurement.

The authors have indicated no financial interest with commercial supporters.

INTRODUCTION

Many hair surgeons would like to estimate the potential recipient area graft density or calculate the necessary graft numbers; however, the recipient area in hair transplantation has an irregular surface and is difficult to measure. In the past, there were many methods to assess the area: Farjo et al. used different simple geometric shapes, including triangles, squares, and circles, to estimate the recipient area.³ However, this is difficult and time-consuming and does not represent the accurate recipient area. Chang et al. developed the use of plastic wrap mounted on a circular embroidery ring to trace the recipient area, which uses a 1cm² grid for area estimation; however, it is difficult to count when the line of measurement crosses the grid.⁴ Pathomvanich and Caroli proposed the refinement of the Chang's method using a ¼cm² grid. It is more accurate in comparison to other non-computer-based methods of area measurement.² Devroye developed a Hairmes software (HAIR transplant area and density MEasurement Software) that can correct the parallax errors caused by the curvature of the scalp, so it can record measurements on a three-dimensional scalp surface. It also can calculate the follicular density and facilitates graft calculation for planning of the recipient area.⁵ Azar described a three-dimensional measurement by means of the Blitz 3D scanner or Eva 3D scanner; however, these are not real-time measurements.⁶ Today, grid counting is still standard practice by the majority of hair restoration surgeons, but it is not accurate when the area has a different shape such as a triangle, rectangle, or circle.

We propose a modified recipient area measurement with the SketchAndCalc application.¹ This application is an irregular area calculator for any shape. It has a unique feature that allows the user to set the drawing scale on any image before drawing the perimeter of the shape. Irregular areas containing angles or curves are therefore easily calculated without complex geometry, which allows for a more accurate estimation and eliminates the error at the periphery of the marking in comparison to the refined Chang's method.¹

We used this application to measure both simple and complex geometric shapes. The results were quite accurate compared to the refined Chang's method, so we then proceeded to use this application in patients.

MATERIALS AND METHOD

We used SketchAndCalc in 20 consecutive patients who visited the clinic for a consultation or pre-operative assessment. The estimation for the recipient area was performed using our proposed methodology, which was an irregular area calculator application (SketchAndCalc) of the refined Chang's method. Two doctors and one nurse were assigned to count each area with the original refined Chang's method before using the application to minimize human bias.

Steps in preparation

Below are the steps we followed:

- 1. Correct visualization of the recipient area:** The patient was examined in an even light illumination; this can be with or without magnification. The patient's hair was wetted (with normal saline or distilled water) for better visualization of the bald area. A tray of items for hair examination was available containing normal saline, a comb, hair bands, hair clips, skin-marker pencils (black and white), a gentian violet marker, plastic wrap on an embroidery ring, a 1cm² grid scale,⁷ a scale ruler, a tablet (iPad) with an apple pen, and the SketchAndCalc application (Figures 1 and 2).
- 2. Skin marking:** The borders of the bald area were marked. This can be done with either a fine-point marker or a surgical gentian violet pen.

FIGURE 1. Hair examination tray (see details in text), courtesy of Dr. Pathomvanich

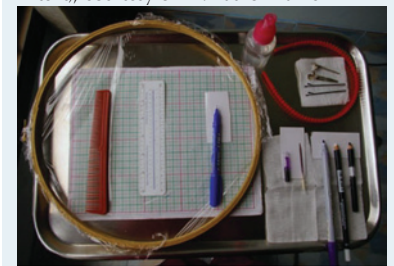
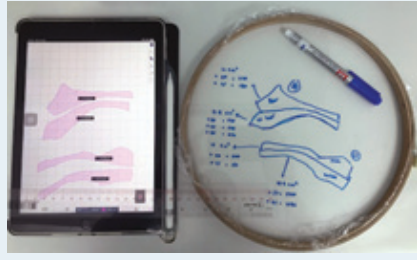


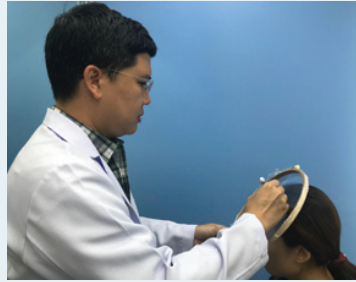
FIGURE 2. An embroidery ring was laid down on the screen and traced the line along the marked area.



of the wrap on the three-dimensional scalp curvature limited the accuracy of the marked line.

4. **Grid for area calculation:** We used a transparent plastic wrap mounted on a circular embroidery ring to trace the recipient area (Figure 3). The grid scale on the

FIGURE 3. Tracing of the recipient area.



SketchAndCalc application was set to the actual 1cm² by the scale ruler. Next, an embroidery ring was laid down on the screen and we traced the line along the marked area with a tablet pen (Figure 2). We then compared the estimated area measured by the two doctors and one nurse with

the refined Chang's method and the SketchAndCalc application. The results were recorded in a Microsoft Excel sheet and analyzed statistically by the Intraclass Correlation Coefficient (ICC), a common statistic value used to assess agreement. Agreement measurements are widely used in exploring the consistency of different raters when they are measuring the same subject, or in case of finding the consistency of different methods or instruments. Based on the 95% confidence interval of the ICC estimate, values less than 0.5, between 0.5 and 0.75, between 0.75 and 0.9, and greater than 0.90 are indicative of poor, moderate, good, and excellent reliability, respectively.⁸

RESULTS

Patient demographics are shown in Table 1. Twenty patients were estimated using our proposed methodology, which was an irregular area calculator application (SketchAndCalc) compared to the refined Chang's method. From Table 2, the analysis of comparing methods by ICC shows that the SketchAndCalc application has excellent reliability (ICC=1) as well as the refined Chang's method (ICC=0.99).

DISCUSSION

In our study, the SketchAndCalc application allowed for a more accurate estimation of small, narrow, irregular-shaped areas, such as a narrow hairline and the sideburn area, and eliminated the error at the periphery of the marking in comparison to the manual refined Chang's method. In comparison, Farjo's method is complicated because we have to divide the area into many simple geometric shapes. For Hairmes software, we have to take a picture of the recipient

3. Zoning and tracing:

The bald area was marked and divided into small zones wherever the curvature of the scalp changed sharply. Each of the zones was drawn separately on the plastic wrap. Movement

TABLE 1. Demographic Data

Data	Total Patients (n = 20)	
	Mean ± Standard Deviation	Min – Max
Age (Year)	41.85 ± 13.68	25 – 66
Sex (Percentage)		
Male	19 (95)	
Female	1 (5)	
Category of Case Enrollment (Percentage)		
Pre-operative assessment	10 (50)	
Consultation	10 (50)	
Hair Loss Classification		
I		1
II		2
III vertex		2
IV		4
V		4
VI		4
VII		1
Lower hairline		1
Sideburn		1

TABLE 2. Comparison of Reliability of the Measuring Methods of the Recipient Area

Recipient Area Measurement	Absolute agreement of the measuring methods of the recipient area	
	Refined Chang's Method ICC (Confidence Interval 95%)	SketchAndCalc Application in Refined Chang's Method ICC (Confidence Interval 95%)
ICC (3,k) Intra	0.99 (0.997 – 0.999)	1.000
ICC (2,k) Inter	0.99 (0.997 – 0.999)	1.000

area with a scale ruler and then upload it to the computer to calculate the area. The Blitz 3D scanner and Eva 3D scanner are expensive, time-consuming, and not suitable for immediate use in the hair transplantation clinic.⁶

The result of our study is only slightly different from the refined Chang's method because our experienced staff have been using the refined Chang's method for over a decade. The difference may be greater for inexperienced users. The proposed method is easy to learn. The calculated area is an accurate measurement of the actual recipient area because we use a stylus pen to trace the marked area, then the program calculates the estimated area and stores the result in our tablet. Moreover, when the measured area is long and narrow, SketchAndCalc is more accurate and precise since it can record in decimal points (Figure 4). However, the SketchAndCalc application is not a freeware; the cost is about \$99USD/year.

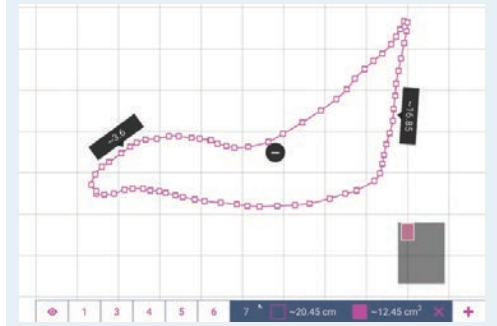
CONCLUSION

The SketchAndCalc application allows for a digital version of the refined Chang's method, like a magic paper. It is an easy, rapid, accurate, and portable method of recipient area measurement. The hair transplant surgeon can easily use it and get acquainted with it.

References

1. Dobbs, Elliott M. "www.SketchAndCalc.com." SketchAndCalc. Elliott M. Dobbs, 20 Feb 2011.

FIGURE 4. Calculating the estimated area in decimal points.



Warning from the Medical Board of California: Hair Restoration Surgery Requires a Medical License

Victoria Ceh, MPA, Executive Director, ISHRS | vceh@ishrs.org

The following is of interest to physicians who specialize in hair restoration surgical procedures. The stance of the Medical Board of California (MBC) is consistent with the ISHRS's Position Statement on Qualifications for Scalp Surgery.

As published on the MBC website on September 6, 2019, in the Medical Board of California News, Summer 2019, page 12:

"Warning: Hair Restoration Surgery Requires a Medical License

Hair restoration surgery is the practice of medicine in California and may only be performed by properly-trained, licensed physicians and surgeons or licensed allied health care providers authorized to perform such procedures within their scope of practice.

Companies may be marketing surgical devices to physicians indicating that hair restoration surgery is a delegatable procedure, causing confusion about who may use such devices in California.

Physicians may not delegate hair restoration surgery to medical assistants, who are unlicensed individuals with a very limited scope of practice pursuant to Business and

Professions Code sections **2069** and **2070** and **Title 16 of the California Code of Regulations section 1366**. Medical assistants may not perform invasive procedures such as creating holes or slits in a patient's scalp with a needle, scalpel, or other device.

For more information about the role of medical assistants, please see ***Is Your Medical Assistant Practicing Beyond His or Her Scope of Training?***

No unlicensed person may perform these procedures in California, including those using titles such as hair restoration technician, surgical technician, hair restoration assistant, or any other title. California's ***Business and Professions Code section 2052*** prohibits the practice of medicine by unlicensed individuals, as well as aiding and abetting the unlicensed practice of medicine. Violation can result in a fine of up to \$10,000, imprisonment, or imprisonment in county jail for up to a year or both the fine and either imprisonment."

The full bulletin may be found at: <http://www.mbc.ca.gov/Download/Newsletters/newsletter2019summer.pdf>

➤ CONTINUED FROM PAGE 229

2. Caroli, S., et al. Optimize the efficiency of recipient area estimation: a comparative study. *Hair Transplant Forum Int'l*. 2010; 20(6):179,183-185.
3. Farjo, B. Estimating graft numbers made easy for the recipient site. *Hair Transplant Forum Int'l*. 2000; 10(3):73.
4. Parsely, W. Follicular unit instrumentation. In: D. Stough and R. Haber, editors. *Hair Transplantation*. Philadelphia: Elsevier Saunders; 2006, p. 99.
5. Devroye, J. New Software for Making Density and Surface Area Measurements in Hair Transplantation. In: W.P. Unger, et al., editors. *Hair Transplantation*. London: Informa Healthcare; 2010, p. 17-19.
6. Azar, R.P. Surgical Planning. In: R.P. Azar, editor. *FUE Hair Transplantation: A Minimal Invasive Approach*. Berlin: Springer; 2019, p. 53-54.
7. Caroli, S. Optimizing the Efficiency of Recipient Area Estimation. In: D. Pathomvanich and K. Imagawa, editors. *Practical Aspects of Hair Transplantation in Asians*. Tokyo: Springer; 2018, p. 372-375.
8. Koo, T.K., and M.Y. Li. A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine*. 2016; 15(2):155-163. ■

TRIVELLINI

THE FUTURE OF HAIR
RESTORATION IS HERE!



FAST
EXTRACTIONS

OPTIMAL
QUALITY GRAFTS

HIGH
SATISFACTION

TRIVELLINI

WWW.TRIVELLINITECH.COM



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.

Post-operative symptoms can be tricky. Sometimes they mimic preexisting or unrelated conditions, and if they are caused by the surgery itself, it is important to recognize the optimum treatment in a timely manner! If we are honest, it is this kind of nimble problem solving that keeps medicine fun and interesting, so give your brain a little workout with these post-operative symptom vignettes.

Common Post-Op Symptoms

1. Your 27-year-old patient has just had 2,350 FUE grafts to the frontal area without incident. On post-operative day 2 (POD 2), he calls your office to complain that he had a very hard time sleeping at an upright angle as you suggested and is experiencing significant fatigue and eye twitching. Due to the lack of sleep, he had to drink an espresso just to stay awake to do his job as a computer programmer. He is very concerned that the eye twitching represents some sort of permanent nerve damage. Which of the following would you recommend this patient do for his condition?
 - A. Purchase a pair of specialized eyeglasses to reduce eye strain while computer programming.
 - B. Do nothing; the eye twitching will go away on its own once the swelling decreases.
 - C. Consult a neurologist to determine the diagnosis and recommend treatment.
 - D. Drink less caffeine and get adequate sleep.
2. This same patient calls you on POD 4 complaining of significant forehead swelling and swelling between his eyes and in his eyelids. He sends you a photo of his "elephant man" appearance, and you note three tiny reddish/pink hemorrhages from broken blood vessels around his eyes. He has no fever or pain, but his appearance is so concerning to him that he is leaving for the emergency room as he calls. Which of the following would you recommend this patient do for his condition?
 - A. Lie flat and apply ice packs directly to the eye area.
 - B. Take ibuprofen to reduce inflammation around the eyes.
 - C. Stay as upright as possible over the next few days and massage the fluid to the sides of the face.
 - D. Head straight to the emergency room and tell the doctor there to give him a dexamethasone IM injection with oral prednisone taper over the next five days.
3. Your 45-year-old male patient returns for his 2-week follow-up after a hair transplantation surgery yielding 2,545 FU grafts. His post-operative course was uneventful with the exception of a pulsatile 1-2cm "lump" that has developed behind his left ear. The patient can feel it throbbing, but it is not particularly painful. He is concerned that he has developed a brain tumor. You listen to the slightly elevated and faintly purple bulge with your stethoscope and hear a machine-like sound. His blood pressure is normal, and he feels well otherwise. What do you tell him is the most appropriate next step?
 - A. To get a duplex ultrasound to rule out a hemorrhagic bleed.
 - B. To get a computerized tomography (CT) scan to rule out a possible tumor.
 - C. To watch and wait, since this condition is likely to resolve on its own.
 - D. To get a magnetic resonance angiography (MRA) to rule out an arteriovenous fistula.
4. Your 38-year-old female patient calls you 3 months after her 2,200-graft hair transplantation surgery complaining of significant hair loss. She feels she has less hair now than before her surgery and is very upset. She is a former vegetarian who has recently started eating more protein. She has a history of pregnancy related anemia at age 28, but has been supplementing with iron for 10 years. She is allergic to penicillin and is taking no other medications for her biopsy-proven androgenetic alopecia. She uses a PhotoBioModulation (PBM, or low level light therapy) hood device with a wavelength of 678nm three to five times per week for 20 minutes. What do you tell her that this current loss is due to?
 - A. Overuse of the PhotoBioModulation (PBM) hood device
 - B. Hair surgery "shock loss" (shedding or telogen effluvium), but that it is temporary
 - C. Increased protein intake, but that it is temporary
 - D. Lack of minoxidil use, but that it can be reversed with twice daily treatment

5. You have recently instituted a number of practice improvements designed to shorten and improve your patients' post-operative recovery. You now require patients to avoid caffeine and alcohol before their surgery to reduce intra-operative bleeding. You also have patients sleep at a 45-degree angle the first three nights (you give diazepam to help this) and give dexamethasone IM injection with oral prednisone taper over the next five days to reduce forehead swelling. You have started to give all your patients a post-op kit that includes a copper peptide spray to keep grafts moist as they heal and nutraceutical protein shakes for the first 6 months to speed healing and regrowth. Finally, you encourage ALL patients to start on finasteride 1mg PO QD one month before the surgery and maintain it throughout the first year to reduce shock loss. Unfortunately, you now notice many of your patients are returning with intractable hiccups (myoclonus). Which of the new interventions you have instituted is the most likely cause of this post-operative symptom?
 - A. Avoiding caffeine and alcohol before the surgery
 - B. Copper peptide spray and nutraceutical protein shakes
 - C. Corticosteroid injections and post-op oral prednisone taper with benzodiazepines
 - D. Finasteride 1mg PO QD starting one month before the surgery and continuing throughout the first year
6. Your patient returns to your office 3 months after FUE of 3,432 grafts. He has several severely depleted areas of patchy hair loss 1-2cm wide in the donor area with tiny dot scars throughout. The patches are most concentrated at the occipital/parietal border in the donor area. He recently started treatment with minoxidil and has been using it over his entire head once daily. Which of the following is the likely cause?
 - A. Overharvesting and lack of blood flow
 - B. Shedding due to initiation of minoxidil treatment
 - C. Previously undiagnosed alopecia areata
 - D. Normal hair cycling (anagen to catagen to telogen) causing transient shedding
7. Your patient returns to your office 3 months after linear excision (FUT) of 4,432 grafts. Initial elasticity was 15% on the Mayer-Paul's Elasticity Scale. He has several areas of patchy hair loss 1-2cm wide in the donor area in the area of the now-healed scar. He has recently started treatment with minoxidil and has been using it over his entire head once daily. Which of the following is the likely cause of this post-operative symptom?
 - A. Overharvesting and lack of blood flow
 - B. Shedding due to initiation of minoxidil treatment
 - C. Previously undiagnosed alopecia areata
 - D. Normal hair cycling (anagen to catagen to telogen) causing transient shedding
8. Your patient returns to your office complaining of several pimples throughout the donor area 3 months after FUE of 2,232 grafts. He has tightly curled hair and had a high transection rate (~10%) during his surgery. There are several 0.5-1cm boils and cysts with tiny dot scars about 1mm in diameter throughout the donor area. They are painful and once popped drain pus with small spicules of hair. He recently started treatment with minoxidil and has been using it over his entire head once daily. Which of the following is the best initial treatment for this post-operative symptom?
 - A. Hot, moist compresses twice daily
 - B. Ciprofloxacin antibiotic 500mg BID for 4 weeks
 - C. 0.05% clobetasol propionate foam (high potency steroid) to the area twice daily for 1 month
 - D. A sterile 20G needle given to the patient for him to use to pop the cysts as they develop
9. Your 74-year-old patient returns for a 2-month follow-up for his 2,438 FUE surgery. He had significant bleeding during the surgery due to coumadin treatment that he stopped 4 days prior to surgery (he meant to do it for 5 days but forgot). He complains of numbness at the top of his head (vertex) and lack of hair growth. What do you tell him?
 - A. He has nerve damage and should be examined by a neurologist, but his hair will grow soon.
 - B. He is experiencing temporary paresthesia related to the numbing of his frontal area for the surgery and the hair will take up to a year to grow.
 - C. This condition is likely "Bell's Palsy" (hemi-facial nerve paralysis) unrelated to the surgery and requires steroid treatment, which will delay hair growth.
 - D. It is the result of the additional bleeding during the procedure and vigorous massage will help recover the normal sensation in the area.

➤ ANSWERS ON PAGE 234

Answers

1. **D.** Your patient has myokymia, which is an involuntary and spontaneous quivering of the orbicularis oculi muscle. The most common causes of eyelid twitching are stress, fatigue, and caffeine, of which this poor patient has all three! Thankfully, it is easily treated with more sleep and less stress/caffeine.
2. **C.** Your patient has dependent edema from the fluid drainage in his head from the surgery, most likely exacerbated by the fact that he has been lying flat to sleep for the first few days post-op. The lymph channels most responsible for this are the buccal nodes, which drain the front of your face down the sides of the nose, and since lymph channels do not have their own musculature (unlike your arteries, for example), massage and gravity (and possibly making facial expressions so the facial muscles can squeeze the lymph fluid along) will help. This is NOT an inflammatory response, so the typical responses to an inflammatory swelling (e.g., ice, ibuprofen, steroids) will not help at this point. Steroids can help prevent swelling in the first place, but they are unlikely to help once the swelling has progressed.
3. **C.** This is likely an arteriovenous fistula (AV) fistula, but a small one and thus requires only watchful waiting. AV fistulas can be caused by any piercing or stabbing injury as would happen with either linear excision or follicular unit excision hair surgery. Large AV fistulas are concerning, especially if they occur in the legs, lungs, GI tract, or brain. However, in this case, watchful waiting is sufficient.
4. **B.** This is the very common post-op symptom and answer. All surgeons deal with this to some degree if their patients have any hair remaining in the recipient area, and although use of finasteride, minoxidil, smaller sessions, less epinephrine, and possibly PhotoBioModulation (PBM, or light therapy) and nutraceuticals (like protein shakes, etc.) may help, it remains a common occurrence. Although overuse of a PBM hood device theoretically can impair hair growth, it has not been shown to do so yet either in “*in vivo*” studies or clinical reports (and in fact would probably assist with wound healing and hair regrowth). Starting minoxidil at this time might exacerbate the hair loss since an initial shedding of the hair (i.e., effluvium) is often experienced by first-time users. Increased protein intake might also help healing and regrowth.
5. **C.** Both the steroids and the benzodiazepines can independently raise the risk of hiccups. Although harmless, they are really quite uncomfortable for patients. Should you wish to help, treatments include baclofen, chlorpromazine, and metoclopramide. (Although my favorite remedy is to have someone hold your nose and feed you a glass of ice water while you hold your ears shut...effective AND entertaining!)
6. **A.** Overharvesting and lack of blood flow are major issues with surgical procedures done by untrained (and sometimes unlicensed) professionals. Shedding due to initiation of minoxidil treatment would not be patchy. Previously undiagnosed alopecia areata is possible,

but not the most likely cause. Normal hair cycling is more likely in the recipient zone where the grafts were placed and although the remaining donor hairs are cycling, the same effect does not occur, and additionally would be diffuse, not patchy.

7. **A.** Too much was probably taken with the linear excision leaving tension on the final closure (and perhaps this patient would have been a better candidate for FUE?). Previously undiagnosed alopecia areata is possible, but not likely. Normal hair cycling and shedding due to initiation of minoxidil treatment would be diffuse, not patchy.
8. **A.** Please do NOT answer D and give a single needle that your patient might reuse and infect themselves with (there is case precedent for this!). Start with the correct answer: A—hot, moist compresses twice daily! This is both the treatment and prevention for future outbreaks. Ciprofloxacin (antibiotics) and clobetasol (high potency steroid) would both work well, but for 1-2 weeks, not the 4 weeks (or 1 month), which is the answer choice given.
9. **B.** Post-operative numbing is a common symptom that typically resolves on its own within a year. It is not related to the amount of bleeding during a surgery. In my own experience, numbing can occur in both FUE and FUT patients, and a neurology referral is not necessary. “Bell’s Palsy” (hemi-facial nerve paralysis) involves only one side of the face and is unrelated to hair transplant surgery. ■

Ellis INSTRUMENTS, INC

**CONCIERGE SERVICE
FOR ALL OF YOUR
HAIR RESTORATION
INSTRUMENTATION SINCE
1995**

Visit our new website:
ellisinstruments.com

4B Elmer Street, Madison, NJ 07940 • P: 800-218-9082 • P: 973-593-9222
F: 973-593-9277 • E: ellisinstruments.cellis@gmail.com

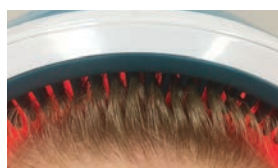
LASER DEVICES THAT FIT ALL YOUR PATIENTS' NEEDS

STEP UP TO HAIRMAX



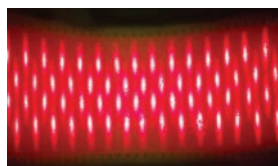
LaserCombs and LaserBands

Uniquely Designed with Three Elements for Efficacy



Patented Hair-Parting Teeth

Hair is a photoprotectant for the scalp. The teeth part the hair to create an unobstructed pathway for maximum laser delivery to hair follicles. Teeth can be removed for use after hair transplantation.



Laser Profile: Dense & Aligned

HairMax laser diodes are closely placed within the devices to provide consistent and uniform delivery of laser light to hair follicles.



Medical Grade Lasers with Lenses for Focused Energy

HairMax lasers have lenses that deliver collimated light. This focused light penetrates the scalp to better stimulate hair follicles, unlike laser devices without lenses.

The Ideal Choice

Monotherapy or Adjunctive Use

Full Scalp Coverage | Fastest Treatment Time

LaserBand devices provide coverage equivalent to 246 lasers.

8 FDA Clearances* & 14 International Medical Device Licenses

The pioneers in laser hair growth, innovating the FIRST FDA CLEARED* home use laser device on the market.

7 Clinical Studies with 460 Men & Women

Studies conducted at top medical research hospitals. Peer reviewed in 6 medical journals.

Bio-Active Thinning Hair Care System

Provides comprehensive care for thinning hair.



The Leader In Laser Hair Growth

Speak with a HairMax Med Professional 561.417.0200 (ext. 112) or 1.888.841.2535 | HairMaxPro.com

*HairMax Laser devices are indicated to treat Androgenetic alopecia, and promote hair growth in males who have Norwood Hamilton Classifications of IIa to V and in females who have Ludwig (Savin) I-4, II-1, II-2, or frontal patterns of hair loss and who both have Fitzpatrick Skin Types I to IV. The HairMax Laser 272 is indicated to promote hair growth in males with Androgenetic alopecia who have Norwood-Hamilton Classifications of IIa - V, or females with Androgenetic alopecia who have Ludwig-Savin Classifications I - II or Frontal and for both with Fitzpatrick Skin Phototypes I - IV.



Medical and Professional Ethics

Gregory Williams, MBBS, FISHRS | London, England, UK | dr.greg@farjo.com

Spotlight on Guarantees and Assurances

The ISHRS Ethics Committee recently discussed what constitutes acceptable messaging when it comes to offering a written guarantee. The advertising world is changing rapidly. Patients can search the internet for preferred hair restoration surgery providers not just locally but regionally, nationally, and internationally. YouTube videos allow hair transplant surgeons to profile themselves in a personal way to an infinitely large international audience in a manner not possible before. Internet “influencers” can recommend a particular clinic to their social media followers that may number in the millions. In a competitive market, digital advertising enticement is becoming a primary driver in attracting patients, but with competition comes both scrupulous and unscrupulous marketing behaviours. One of the features that defines the black market is the purposeful deception of patients, and this can take place at any juncture of the patient-physician interaction: pre-operative, intra-operative, or post-operative.

If you do a quick google of the phrase “hair transplant guarantee,” or look at hair transplant clinic advertisements on social media, what do you see? You find many doctors and clinics offer guarantees—guaranteed hair growth, 100% satisfaction guarantees, and/or money-back guarantees.

During the consultation process, patients often ask about how many of the transplanted hairs will grow. What should you tell them when large-scale, good-quality research-based evidence is not available to provide a robust evidence-based answer? In the absence of this, we do have small studies on Strip Follicular Unit Transplantation graft growth rates vs. Follicular Unit Excision graft growth rates. However, it is well known that there is a wide range in growth rates that is achieved using grafts derived from either harvesting method, even in the best hands, for reasons that are not yet clear. The ISHRS provides its members with a list of misleading and inappropriate messages that should not be used in their advertising or on their websites. The term “guaranteed results” was recently added to this list.¹

Expectation is important in managing post-operative satisfaction. If thick coverage is the expectation after a single hair transplant procedure, then many patients will likely be disappointed. This is even more of an issue when transplanting into areas of secondary scarring alopecia or burnt out primary scarring alopecia. The visual appearance of a hair transplant will be affected by hair type (including colour, diameter, and curl), hairstyle, hair length, and contrast with skin colour. The same number of transplanted hairs that grow will look different from patient to patient. So, should satisfaction ever be guaranteed?

In fact, what can be “guaranteed”? A physician can promise to try his or her best, to be honest, and to treat the



Reflective Questions

- Do I think it is acceptable to advertise guarantees of hair growth?
- Do I think it is acceptable to advertise patient satisfaction guarantees?

patient with dignity and respect—that is, the things that are within his or her control—but can a physician really guarantee hair growth, satisfaction, or “success”? In this context, is there a difference between an assurance and a guarantee? The Oxford dictionary defines “assurance” as “a positive declaration intended to give confidence; a promise,”² whereas it defines “guarantee” as “a formal assurance (typically in writing) that certain conditions will be fulfilled, especially that a product will be repaired or replaced if not of a specified quality.”³

A doctor can offer a written money-back guarantee if a patient is not 100% satisfied, but is that doctor really going to give a patient a full refund if the patient isn’t entirely happy with the result? Who defines what a good result is? What if the patient is just a little unhappy; should the patient then be offered a partial refund? Would the amount of the refund reflect the degree of discontent? Who would decide the settlement amount: the doctor or the patient?

I have heard of patients unhappy with their results who have gone back to that same doctor for their “free” repeat surgery only to be disappointed by the second procedure, too, and then have gone on to seek further treatment elsewhere. Conversely, I have had patients come to me who were deeply disappointed by their results with another provider, and I think their results are perfectly acceptable and ones that I would have rated as average results in my own hands. So, how do we determine a standard for an acceptable result? In the absence of widely accepted objective patient reported outcome measures (PROMs) to assess transplanted hair growth numbers compared to number of follicles implanted, how can a hair growth guarantee even be measured?

The Royal College of Surgeons of England’s Professional Standards for Cosmetic Surgery states: “You must not mislead about the results you are likely to achieve. You must not falsely claim or imply that certain results are guaranteed from an intervention.”⁴ However, patients understandably want some reassurance that they are going to get their money’s worth. A clinic that guarantees results is more likely to attract patients than one that does not. But we all have had patients where the results were not as optimal as we would have liked. A few bad internet reviews can ruin a doctor’s reputation and livelihood, especially if written guarantees are not honoured. On the other hand, if every patient who

wasn't satisfied or who thought their hair growth had not lived up to their expectations was to be financially compensated or offered free repeat surgery, then a clinic would likely suffer financially.

The way physicians handle unhappy patients is certainly critical for protecting their online reputation, however, by setting realistic goals and expectations up front, they may be able to avoid having unhappy patients in the first place.

Well-established doctors and clinics should be able to rely on their reputation and legitimate patient testimonials, as well as quality before and after photographs, to attract patients. However, for those new to the field or struggling to maintain their businesses, offering a guarantee might be seen as one way to build their clientele. Since it is likely that a physician will have some dissatisfied patients, it is probably not a sensible way to advertise, regardless of whether it is ethical to do so. It is always better to under-promise and over-deliver, rather than to offer assurances that might not be met. So, isn't it better to not advertise any guarantee at all? As the saying by John Lydgate sums up: "You can please some of the people all of the time, you can please all of the people some of the time, but you can't please all of the people all of the time."

References

1. ISHRS Alert regarding misleading and inappropriate messaging; <https://ishrs.org/red-flags-misleading-inappropriate-messaging/>
2. Definition of assurance: www.lexico.com/en/definition/assurance
3. Definition of guarantee: www.lexico.com/en/definition/guarantee
4. Royal College of Surgeons of England's Professional Standards for Cosmetic Surgery, page 15; www.rcseng.ac.uk/-/media/files/rcs/standards-and-research/standards-and-policy/service-standards/cosmetic-surgery/professional-standards-for-cosmetic-surgery-web.pdf ■

AtoZ has acquired the HARRIS instrument product line.



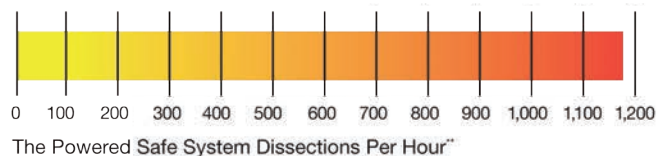
Harris Steel Blunt Punches

THE ADVANTAGES:

- Approved for up to 40,000 grafts with one punch
- New 6 mm depth for all follicle lengths
- HEX vibration separates follicle from skin
- Low transection rate of 2.8%*
- Reusable punch
- Flush port
- Proven for body hair
- Ideal punch for beginners and experts
- Available to FOX Negative® patients



Fast and Efficient Graft Dissection



To order, contact us:

Kenny Moriarty, VP
Email: kenny@georgetiemann.com

Visit us online:

www.georgetiemann.com | www.atozsurgical.com

* In a clinical study by Dr. Harris in over 150 patients and more than 100,000 harvested grafts. General user transection rates may differ.

** Depending on follicular unit configuration and skin characteristics graft dissection rates up to 1200 grafts/hour are possible. Numbers based upon Jim A. Harris, MD extraction rates



JOIN THE ABHRS

Benefits Include

- Join the elite group of 200+ Hair Surgeons from over 30 countries.
- Use of ABHRS logo on your website and marketing materials.
- Increasing your visibility through ABHRS website listings.
- Distinguishing your practice from others in your area and worldwide.
- Demonstrating that you incorporate the latest techniques and developments in hair.
- Earn public trust that you are an expert in the specialty of hair restoration.

2020 Board Certification Oral and Written Exam

October 2020 with the 28th World Congress Panama City, Panama

Come visit us at our booth for more information and credentialing requirements

For more information visit <https://abhrrs.org>

ERTIP[®] Hair Transplant Instruments

For the past 12 years, Ertip Medical has been a leading company for hair transplant and surgical instruments. Our FUE Motorised System helps improve FUE technique. We are CE certified and produce Sharp/Dull FUE motorised or manual punches. We aim to provide our customers with excellent service.

Check out
our full product
line online!

Ertip Medical instruments are

- * Made using the latest technology
- * Of the highest quality, and
- * Budget-friendly.

Ertip offers a basic Must Need Set or a Full Set for hair transplantation and specials for wholesalers. We offer fast, worldwide delivery service.



For more details about our instruments,
Halide Edip Adivar Mah. Akar Cad. No:38
Sisli 34382 ISTANBUL TURKEY



call us at +90 212 210 3220 & GSM +90 507765 6095



or visit our website at www.ertipmedical.com



Meeting Review

Rachael Kay, MBChB | Manchester, UK | rach.kay80@gmail.com

Review of the 27th World Congress of the ISHRS Bangkok, Thailand • November 13-16, 2019

The annual ISHRS World Congress had more than 880 attendees from 69 countries and was an amazing success.

Wednesday, November 13, saw simultaneous running of the Advanced Board Review course, Surgical Assistants programme, and the Basics Course—the latter an opportunity for physicians new to the field to gain practical and didactic training as an introduction to hair restoration surgery. New this year was the Live World Surgery Workshop, and the pre-course for this also took place on Wednesday.

THURSDAY/NOVEMBER 14, 2019

Bradley R. Wolf, MD, FISHRS | Cincinnati, Ohio, USA

Opening Session

The day started with Newcomers breakfast, an opportunity for doctors from a variety of backgrounds to foster relationships with experienced hair surgeons, promoting collegiality and good clinical practice, and learn more about what the ISHRS has to offer. Next, Program Chair Robin Unger opened the meeting. She talked about how gathering knowledge and up-to-date information, then deciding what to incorporate in the annual ISHRS conference, helped her realize her goals. She recognized Walter Unger, as both her father and mentor.

The inaugural Stough Lecture was prefaced with an introduction by its namesake, Dow Stough. He noted how he has been inspired by the symphony of thousands of ISHRS members who make up the orchestra that creates inspiring music. The Stough Lectureship recognizes an individual with vision and a demonstrated passion for education. Established in 2019, it honors ISHRS co-founder Dow Stough, MD, who in the early 1990s recognized that the fractured, chaotic, and often secretive world of hair restoration needed an anchor. The founding of the ISHRS in 1993 brought order to chaos, turned competitors into colleagues, and created an educational organization that has changed the face and improved the outcomes of hair restoration throughout the world. A very well-respected dermatologist from Hot Springs, Arkansas, USA, Dr. Stough was one of the earliest proponents of follicular unit transplantation and natural looking hairlines, and his focus on innovation and teaching is evidenced by Dow being the youngest President, Program Chair, Golden Follicle Award winner, and Manfred Lucas Award winner in ISHRS history. He is a true leader and his contagious enthusiasm has inspired and motivated many hair transplant surgeons.

Ohsang Kwon, from South Korea, the first Stough lecturer, presented his study, "Allogeneic Hair Transplantation: Current

Status." He noted that alopecia patients with severe hair loss often cannot benefit from autologous hair transplantation due to a lack of donor follicles, however, it may be possible to use allogenic hair follicles as donor with the induction of

antigen-specific (T cell) immune tolerance combined with long-term survival using an immunomodulatory strategy such as UVB pre-radiation. These concepts have clinical relevance for preventing allograft rejection by targeting the donor tissue, moving closer to allogenic transplantation without generalized immunosuppression.

In "Important Indications for FUT," Robert True discussed the relevance of FUT today. Although FUE is now performed more often, both FUE and FUT create scars that can cause disfigurement. He summarized that FUT is indicated for the following: 1) in males over 50 years old, 2) females, 3) patients with adequate laxity, 4) combined with FUE, and 5) when no more FUE can be harvested.

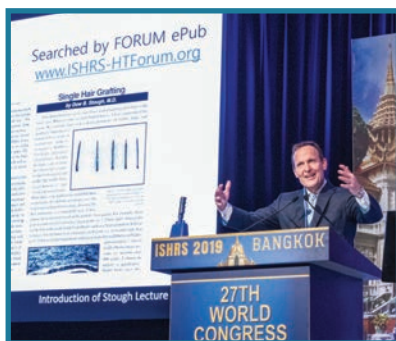
The ISHRS's "Fight the FIGHT" campaign was introduced by President Arthur Tykocinski. The acronym FIGHT stands for Fight the Fraudulent, Illicit & Global Hair Transplants. He reviewed the history and current status of the unlicensed practice of medicine throughout the world. He noted the cornerstone of this public awareness campaign is a newly launched microsite—

<https://fightthefight.ishrs.org/>—which features tips on identifying fraudulent clinics, FAQs on illicit surgery, and patient case studies, among other resources. Drs. Shady El-Magraby, Konstantinos Anastassakis, and Marie Schambach then presented patients who were victims of poorly performed FUE surgery by these clinics. They showed the amazing transformation due to their surgical repair efforts.

On the lighter side, Ricardo Mejia and Paul McAndrews played the roles, quite comically, in a scenario in which a doctor not specializing in hair restoration listened to the sales pitch from a salesman trying to sell him a turnkey FUE machine and who could provide the unlicensed assistants to perform the surgery.



Program Chair Robin Unger gives her opening remarks.



Dow Stough was honored for the inaugural "Dow Stough Lectureship."

Victoria Ceh, ISHRS Executive Director then explained the Conference App.

In the next session, Sharon Keene in conjunction with Walter Unger (who couldn't be there in person) presented "Long-Term Planning." Their message was that each patient must be evaluated based on their current pattern and goals for coverage in the context of the progression of hair loss over time. The latter may impact their permanent coverage in both donor and recipient areas and must be considered for maintaining cosmetic results.

Ron Shapiro followed with his presentation that has become a staple of our meetings, "Hairline Design." He emphasized that the hairline is critical for patient satisfaction, patients with unrealistic expectations must be identified, and it's important for inexperienced doctors to learn hairline design.

In his lecture, "What Not to Do, Mistakes in Surgical Planning," Paul McAndrews noted that the surgical plan is doomed for failure if the doctor is not knowledgeable about both the mechanical and artistic aspects of surgery and how the surgical plan interacts with the progressive nature of androgenetic alopecia.

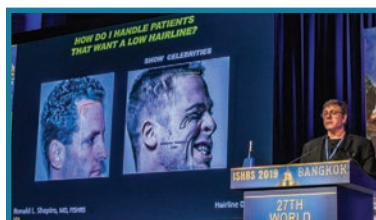
Pierre Bouhanna presented the results of a study of nine women who experienced endocrine-therapy induced alopecia due to the treatment of breast cancer prior to undergoing hair transplantation using the long hair FUT technique. On average, 1,190 hairs/surgery were transplanted and 70% of women reported good to very good improvement.

Robin Unger presented "Making Your Grafts Count." She noted that given the limited donor hair available over the patient's lifetime, maximizing the illusion of density and using grafts in a thoughtful and artistic manner is of vital importance.

Jeff Epstein reviewed the outcomes of 50 cases of hairline lowering/forehead reduction surgery—an alternative to transplants—that he performed. The main advantages he cited included rapidity of results and unequaled hairline density (superior to that achieved with 8,000 plus hair grafts). In more than 80% of the cases, the amount of advancement averaged 21mm and patient satisfaction was high.

Sara Wasserbauer, in discussing the use of scalp micropigmentation (SMP), made the point that many patients will need more grafts than either FUE or FUT can provide. Multiple surgeries of either method can result in complications and suboptimal results, and will take many years to complete. Therefore, SMP is an important tool to complement surgical outcomes.

The session was concluded with a lecture by Luis Trivellini entitled "Preview Long Hair with FUE." For this procedure, he developed a specific punch for the extraction of long hair with four micro openings of 0.25 microns each, which allows



Ron Shapiro speaks about the importance of hairline design.



Professor Ohsang Kwon speaks on allogenic hair transplantation.



Janet Nelson leads the audience through stretches to prevent injury.



Drs. Sharon Keene and Sara Wasserbauer answer questions from the audience.

the patient to return to usual activities the day after surgery without the stigma of having had surgery.

Thursday Afternoon

Damkerng Pathomvanich, MD, FISHRS | Bangkok, Thailand

Jim Harris moderated the afternoon session, which started with Damkerng Pathomvanich sharing valuable tips and pearls for FUT surgery. This included how to minimize follicular transection and donor scarring. By wetting the donor hair, he is able to identify and delineate the safe donor zone. He noted wound closure should be done under minimal tension to avoid a widened scar.

David Josephitis next demonstrated total graft availability in FUT versus FUE cases. He found that there was a higher hair density, hair mass index, and coverage value on the donor that had undergone FUT rather than FUE. One option for patients who require maximum graft harvesting would be combined FUT and FUE surgery, followed by FUE for a subsequent surgery.

Kapil Dua reminded us of the importance of a detailed pre-operative baseline density assessment of the donor region. The recommended residual post-op density is 40 FU/cm² in Asian scalps and 50 FU/cm² in Caucasian scalps. This calculation can then be used to assess the maximum number of grafts that can be extracted. Later in the session, Georgios Zantos demonstrated his innovative way of automatically calculating the Hair Diameter Index, which can serve both to prevent donor

harvesting and, importantly, to evaluate the response to a particular hair loss treatment.

Marcelo Pitchon discussed his excellent technique of Minimum Excision Depth (MED), which limits the depth of the FUT incision to that of the inferior limit of the bulb within the follicle. This allows a very shallow donor wound and is thought to reduce scarring.

Marie Schambach compared the graft quality and coverage value of long hair versus shaved hair FUE.

The important and often overlooked subject of musculoskeletal disorders associated with hair transplant surgeries was discussed by Janet Nelson, a featured guest speaker. Being aware of our body position and taking micro breaks during surgery are ways to help reduce such disorders.

Safety of extractions on a large scale was also touched upon in relation to both beard and scalp grafts. Rahul Kota reflected on 580 cases of FUE extraction, looking at guidelines for the "safe zone," and Yong Miao shared experience of using large scale beard extraction in extensive hair loss, which he feels is a natural choice when scalp donor is insufficient.

Thursday afternoon continued with an exciting look at current hair follicle and stem cell research led by guest speaker Gillian Westgate. This talk reviewed Dr.

Westgate's study into the intrinsic role of dermal adipose tissue in hair growth cycles. Stem cells derived from adipocytes have potential clinical application in fields of hair growth and regeneration. This was supported by Dr. Epstein's study, which found that there was a definite clinical benefit for patients in the arm of the study that received adipose-derived regenerative cells (via liposuction) pre hair transplantation. Ratchathorn Panchaprateep presented her experience of using autologous scalp tissue micrografts, which were obtained using Rigena technology, which is a potentially effective treatment for AGA in some cases.

The day finished with a look at some specialist FUE topics. Mauro Speranzini reviewed different tools including the WAW, Mamba, Beltec, and Facon, and discussed how it is best that all options are available to the operating doctor. Sah Gaurang Krishna shared that PRP in the FUE donor area may promote more effective wound healing.

Jae Hyun Park's presentation described how he was able to perform a 3,000 FU non-shaven procedure in a single day. Seema Garg demonstrated how to utilise beard and body hair in combination with scalp grafting to optimise density. Farfan Chen described her case report in a burns patient which can offer a promising alternative to improve the appearance of scarring. Geza Sikos's lecture reminded us of the importance of well-designed donor areas to avoid overharvesting and causing harm to the patient.

FRIDAY/NOVEMBER 14, 2019

Andreas M. Finner, MD, FISHRS | *Berlin, Germany*

Friday morning began with the popular discussion tables. The lively discussion between all participants was a clear sign how useful this interactive concept is for newcomers and experienced colleagues.

The first session, moderated by Humayun Mohmand, focused on ways to optimize graft survival in FUT and FUE. Walter Krugluger presented a study comparing molecular changes in single and paired FU *in vitro*. An increased expression of BMP4 indicates a higher chance of graft survival in paired FU.

Hyo Kyang measured graft survival in preserved versus trimmed grafts. While not statistically significant, there was a slight tendency in favor of grafts with a preserved epidermis. He concluded that other factors may be more important for the final outcome.

Jean Devroye reviewed different placing techniques and instruments, noting most importantly, they have to be adjusted to the individual hair situation.

Anastasios Vekris presented his technique of direct implantation in FUE using sharp implanters. He noted that the first grafts can be planted immediately without having to wait for the creation of all recipient sites.



Friday's discussion table

solution reduced inflammation; ATPv-supplemented saline had the best trichogenic gene profile.

Arthur Tykocinski passionately demonstrated his technique of using sharp implanters. He emphasized that it allows him to directly control the quality of graft insertion.

Muhammad Ahmad showed that increasing the surgeon's workload leads to a higher transection rate, especially in higher graft numbers and towards the end of the surgery.

The next session, moderated by Nicole Rogers, focused on medical diagnoses and hormonal influences on hair growth. Wen-Yu Wu gave an overview of the efficacy and safety of

Dutasteride in androgenetic alopecia. It is approved in four Asian countries and in his view, the treatment of choice for men with AGA.

Nina Otberg demonstrated the importance of using trichoscopy pre-operatively to avoid pitfalls such as missing a primary scarring alopecia.

In the "Advances in Hair Biology Lecture," Ramon Grimalt gave an excellent overview of current medical treatment options. However, he was skeptical about the effect of PRP in AGA based on a half-head study he conducted.

Ratchathorn Panchaprateep presented a randomized controlled study in 40 post-menopausal women. A combination of finasteride 5mg with minoxidil 5% solution over 24 weeks was more efficient than minoxidil alone.

Friday Afternoon

Vlad Ratushny, MD, PhD | *Beverly, Massachusetts, USA*

PRP and other mechanical treatments for hair loss were brought to life on Friday afternoon. Robin Unger shared her positive experience of using exosomes.

Raymond Grimalt spoke about PRP and the difficulty in objectively assessing a patient's response to treatment. This is particularly so if the patient is taking any other form of treatment modality.

Akaki Tsilosani performed a small study looking at whether PRP injections above and below an FUT scar can improve outcome. It was felt that laxity increases and tension decreases.

Goranka Kuka Epstein introduced her study, a comparison between PRP, adipose tissue, adipocyte tissue with PRP, and placebo. We were also reminded to remove the red blood cells and neutrophils from the final injectable solution, and the importance of having a high monocyte and platelet concentration within this.



Medications Workshop panel discussion



Ramon Grimalt speaks about managing AGA with medical therapy.

The remainder of the session included the use of sharp implanters for eyebrow transplantation, the division of the brow into individual sections, whilst using hair from behind the ear or the frontal triangle. Some concern was expressed that these hairs may be vulnerable to retrograde alopecia.

SATURDAY/NOVEMBER 15, 2019

Saturday's General Session was moderated by Bradley Wolf. Thomas Dawson, a featured guest speaker, shared his extensive knowledge on the factors that optimize hair growth.

Sara Wasserbauer then offered her advice on the five components for a great scalp micropigmentation (SMP) treatment, followed by Sara Salas, who spoke on combining hair restoration surgery with SMP.

William Rassman demonstrated his exciting, innovative laser-based microjet delivery system for tattoo pigment.

Mohsen Piroozhashemi discussed the improved healing and reduced scar formation between using a platelet gel as a dressing versus a conventional dressing.



Tom Dawson, PhD



Best Topics discussion panel



Saturday General Session

Nicole Rogers provided an update on hormonal and nutritional supplements.

We then had a session dedicated to open dialogue where attendees could ask questions and share ideas.

Saturday Afternoon

The World Live Surgery Workshop started on Saturday at lunchtime. The "Triple Crown" incorporated FUT, FUE, and SMP. Individual cases were reviewed for all three techniques. Various aspects of SMP were discussed, including safety, dermatological implications, artistic aspects, and complications. Delegates were then able to view practical SMP techniques alongside live FUE and FUT surgeries, enabling exposure to a wide variety of tools and surgical approaches.

SUNDAY/NOVEMBER 16, 2019

The Congress concluded with live surgeries that included six simultaneous cases: FUT, FUE, body hair transplantation, long hair FUE, and combination FUT/ FUE surgeries. And, before we knew it, another successful World Congress was wrapped up. ■

Explore the newly-launched Forum website, FORUM ePub!

Highlights

- Increased visibility for authors and articles
- All articles will be issued a DOI, part of Crossref (interlinks for journal articles)
- Easily-navigable and excellent search function
- New featured articles section
- New! Some articles will be tagged for public viewing

www.ISHRS-HTForum.org

FREE RECORDED SESSIONS FOR ISHRS MEMBERS

Select Recorded Sessions from Bangkok ISHRS World Congress for Members to View

Several general sessions and a workshop were recorded at the Bangkok ISHRS World Congress and being provided to members to view.

This is a value-add for all ISHRS members. There is no extra charge and is offered as an additional benefit of being an ISHRS member.

To view, go to the Members Only section of www.ishrs.org.

It is easy to navigate; simply click on the lectures or discussions you would like to view. Watch from your computer, tablet, or phone.

Sessions:

Session 1: Opening Session

Session 4: Current Hair Follicle and Stem Cell Research

Session 8: PRP and Other Mechanical Treatments

Workshop 105: SMP

Session 1: Opening Session

Welcome & Introduction

Robin Unger, MD, Program Chair | USA

Introduction of Stough Lecture Debut

Sungjoo (Tommy) Hwang, MD, PhD, FISHRS, Immediate Past President | South Korea

STOUGH LECTURE

Allogeneic Hair Transplantation: Current Status

FEATURED GUEST SPEAKER

Ohsang Kwon, MD, PhD | South Korea

Important Indications for FUT

Robert H. True, MD, MPH, FISHRS | USA

Fight the FIGHT (Black Market Campaign) – Why You Should Care

Arthur Tykocinski, MD, FISHRS, President | Brazil

Patient Stories

Shady El-Magraby, MD | Egypt

Konstantinos Anastassakis, MD, PhD, FISHRS | Greece

Marie Andree Schambach, MD | Guatemala

FIGHT Turnkey Model

Ricardo Mejia, MD | USA

Paul J. McAndrews, MD, FISHRS | USA

What You Can Do to Fight the FIGHT

Arthur Tykocinski, MD, FISHRS and Panel

Navigating the Conference App & Housekeeping Notes

Victoria Ceh, MPA, ISHRS Executive Director | USA

Session 4: Current Hair Follicle and Stem Cell Research

Moderator Introduction

Francisco Jimenez, MD, FISHRS | Spain

NORWOOD LECTURE

Adipose Derived Stem Cells: Where Are They From and What Are They Doing for the Hair Follicle?

FEATURED GUEST SPEAKER

Gillian Westgate, PhD | United Kingdom

A Review of the First FDA Approved Study on Regenerative (Stem) Cells for Hair Loss – What Have We Learned?

Gorana Kuka-Epstein, MD | Serbia

Methods for Deriving Hair Follicle Containing Sheets In Vitro

Craig L. Ziering, DO, FISHRS | USA

The Experience of Using Autologous Scalp Tissue Micrograft Obtained with Rigena Technology for Hair Restoration

Ratchathorn Panchaprateep, MD, PhD, FISHRS | Thailand

Questions & Answers

Session 8: PRP and Other Mechanical Treatments for Hair Loss

Moderator Introduction

Daniel G. McGrath, DO | USA

Exosomes/Mesenchymal Stem Cells: What Are They? What Do You Need to Know?

Robin Unger, MD | USA

Use of Platelet Rich 3D Fibrin Scaffold as a Graft Holding Media with Clinical and Histological Analysis

Anil Garg, MBBS, MS, MCh | India

PRP for the Treatment of AGA

FEATURED GUEST SPEAKER

Ramon Grimalt, MD | Spain

The Effect of PRP on Linear Wound Closure Forces During FUT Megasessions

Akaki Tsilosani, MD, PhD, FISHRS | Georgia

Comparison of the Efficacy of Platelet Rich Plasma (PRP) Therapy vs. Enriched Adipose Tissue with PRP in Treating Early Stage of Androgenic Alopecia in Men and Women

Gorana Kuka-Epstein, MD | Serbia

The Application of Microneedle in Eyebrow Transplantation

Xingdong Li, MD | China

Questions & Answers

Workshop 105: SMP

Director: Timothy P. Carman, MD, FISHRS | USA

Faculty:

Dawn Forshaw | United Kingdom

Robert S. Haber, MD, FISHRS | USA

Milena Lardi | Italy

William R. Rassman, MD | USA

Ronald L. Shapiro, MD, FISHRS | USA

Tarryn Vice | United Kingdom

Sara M. Wasserbauer, MD, FISHRS | USA

Greg Williams, MBBS, FISHRS | United Kingdom

Scalp Micropigmentation (SMP) is a powerful adjunctive therapy to complement any hair transplantation practice. It is a subtle tool which can be used in aiding cosmesis related to low follicular density or scarring from previous surgery. It accomplishes this by decreasing the appearance of color contrast between the hair and scalp. This workshop will address the basics of the science behind the different types of available pigments and how they interact with dermal tissue, the available systems and techniques for delivering these pigments, patient selection and indications, and how to deliver this care in a safe, responsible manner.

Artistic Goals in SMP

Timothy P. Carman, MD, FISHRS

| USA

Safety in SMP

Greg Williams, MBBS, FISHRS |

United Kingdom

Dermatologic Consequences of SMP

Robert S. Haber, MD, FISHRS | USA

Technical Aspects of SMP

Tarryn Vice | United Kingdom

Questions & Answers

Technical Aspects of SMP II: SMP Systems

Milena Lardi | Italy

Technical Aspects of SMP III: SMP Systems

Dawn Forshaw | United Kingdom

Proper Selection of Patients/SMP

Consultation

William R. Rassman, MD | USA

Practice Integration of SMP

Ronald L. Shapiro, MD, FISHRS | USA

Complications/Revisions in SMP

Sara M. Wasserbauer, MD, FISHRS | USA

New Frontiers in SMP

William R. Rassman, MD | USA

Questions & Answers

NOV 13-16
27TH WORLD CONGRESS



2019 World Congress Planning Committee

Congratulations to the 2019 World Congress Planning Committee!



Members of the 2018 World Congress Committee

L to R: Melanie Stancampiano (Program Manager), Marie Schambach, Damkerng Pathomvanich, Ratchathorn Panchaprateep, Jerzy Kolasinski, Sam Lam, Steven Gabel, Tim Carman, Kapil Dua, Arthur Tykocinski, Robin Unger, Brad Wolf, Humayun Mohmand, Ken Williams, Jeff Epstein, Marwan Nouredin, Ricardo Lemos, Mauro Speranzini, Victoria Ceh (Executive Director)



Course Prep Team

Thank you to the many Surgical Assistants who helped to prepare the hands-on courses in Bangkok!

L to R: Arthur Tykocinski, Piyyarat Piyadumrongkit, RN, of Dr. Damkerng Pathomvanich's office, Diana Carmona of Dr. Timothy Carman's office, Napaphat Sukjai of Dr. Damkerng Pathomvanich's office, Cheryl Malit of Dr. Robin Unger's office, Biljana Djordjevic of Dr. Michael May's office, Tina Lardner of Dr. James Harris's office, Aileen Ullrich, CMA of Dr. Steve Gabel's office, Salome Vadachkoria of Dr. Vazha Vadachkoria's office, Laura Krys, RN of Dr. Ezequiel Panno's office, Melanie Stancampiano (Program Manager)



ISHRS Meeting Staff

Front Row L to R: Jule Uddfolk (Meeting & Exhibits Manager), Victoria Ceh (Executive Director), Kimberly Miller (HQ & Administrative Manager), Blanca Stella Mejia (Integrated Communications Manager)

Back Row L to R: Katie Masini (Membership Manager & Registrar), Sheri Valskis (Project Manager), Melanie Stancampiano (Program Manager), Amy Hein (Meeting Planner), Davin Ayarzagotia (Administrative Coordinator)

2019 World Congress Planning Committee

Robin Unger, MD, Chair

Daniel G. McGrath, Advanced/Board Review Course Chair

Jerzy R. Kolasinski, MD, PhD, FISHRS, Advanced/Board Review Course Co-Chair

M. Humayun Mohmand, MD, FISHRS, Basics Course Chair

Ricardo Gomes de Lemos, MD, Basics Course Co-Chair

Steven P. Gabel, MD, FISHRS, Basics Immediate Past Chair

Ratchathorn Panchaprateep, MD, PhD, FISHRS, Live Patient Viewing Chair

Glenn Charles, DO, FISHRS, Live Patient Viewing Co-Chair

Jeff Epstein, MD, FACS, FISHRS, M&M Chair

Mauro Speranzini, MD, M&M Co-Chair

Paul Cotterill, MD, FISHRS, Newcomers Chair

Marwan Nouredin, MD, Surgical Assistants Chair

Bradley R. Wolf, MD, FISHRS, Workshops Chair

Parsa Mohebi, MD, FISHRS, Immediate Past Chair

Kapil Dua, MBBS, MS, FISHRS, WLSW Chair

Ken L. Williams, Jr., DO, FISHRS, WLSW FUE Co-Chair

Damkerng Pathomvanich, MD, FISHRS, WLSW FUT Co-Chair

Timothy P. Carman, MD, FISHRS, WLSW SMP Co-Chair

Samuel M. Lam, MD, FISHRS, Committee member

Francisco Le Voci, MD, Committee member

Marie Andree Schambach, MD, Committee member

Roberto Trivellini, MD, Committee member

Ramiro Yane, MD, Committee member

ISHRS Leadership & Committees

November 13-16, 2019 • Bangkok, Thailand



ISHRS 2018-2019 Board of Governors and Past Presidents

Front Row L to R: Ali Abbasi, Nilofer Farjo, Arthur Tykocinski, Sungjoo Tommy Hwang, Francisco Jimenez, Paul McAndrews, Ricardo Mejia, Victoria Ceh (Executive Director), Tony Mangubat, Sharon Keene

Back Row L to R: Paul Cotterill, Robert Leonard, Marcelo Pitchon, Kapil Dua, Jean Devroye, Robert True, James Harris, Bessam Farjo Carlos Puig



ISHRS 2018-2019 Executive Committee

L to R: Paul McAndrews, Sungjoo Tommy Hwang, Arthur Tykocinski, Francisco Jimenez (Not pictured: Mel Mayer)



The "Notorious 9" ISHRS Members Toast to Having Attended All 27 World Congresses

L to R: Paul Cotterill, Russell Knudsen, John Gillespie, Ivan Cohen, Robert Haber, Bessam Farjo, Mario Marzola, Robert Leonard, Edwin Epstein



Global Council of Hair Restoration Surgery Society Members

2019 Research Grant Recipients

Congratulations to the 2019 Research Grant recipients!



Comparison of the Efficacy of Platelet Rich Plasma (PRP) Therapy vs. Enriched Adipose Tissue with PRP in Treating Early Stage Androgenic Alopecia in Men and Women (Compass)

Gorana Kuka Epstein, MD, FISHRS (pictured)
Research team: Jeffrey Epstein, MD, FISHRS



Autologous Platelet-rich Plasma Combination with Microneedling Compared with Microneedling Alone in the Treatment of Androgenetic Alopecia, Split Scalp Studys

Ratchathorn Panchaprateep, MD, FISHRS (pictured)
Research team: Poonnapa Deewongkij



Characterisation of Stretched Scar Fibroblasts

Gregory Williams, MBBS, FISHRS (pictured)
Research team: Magdalena Plotczyk, PhD, Claire A. Higgins, PhD

Reducing FUE Scarring

Gregory Williams, MBBS, FISHRS (pictured)
Research team: Claire A. Higgins, PhD

Comparison of Viability of Grafts Placed in Various Holding Solutions over 24 Hours

Bobby Sreenivasan, MD (not pictured)
Research team: Bafusa Awukk A. Ali, Maria Adriana Sicobeanu



Congratulations to
Drs. Andreas Finner and Brad Wolf
for concluding their three-year term
(2017–2019) as Co-Editors of the
Forum.

2019 Awards and Recognition



2019 GOLDEN FOLLICLE AWARD

Robert H. True, MD, MPH, FISHS
For outstanding and significant clinical contributions related to hair restoration surgery



2019 PLATINUM FOLLICLE AWARD

Ratchathorn Panchaprateep, MD, PhD, FISHS
For outstanding achievement in basic science or clinically-related research in hair pathophysiology or anatomy as it relates to hair restoration



2019 DISTINGUISHED ASSISTANT AWARD

Aileen Ullrich, CMA
Presented to a surgical assistant for exemplary service and outstanding accomplishments in the field of hair restoration surgery



Congratulations to the Chairs and Co-Chairs of the 27th World Congress and World Live Surgery Workshop of the ISHRS!

L to R: Arthur Tykocinski, Ken Williams, Ratchathorn Panchaprateep, Tim Carman, Damkerng Pathomvanich, Kapil Dua, Victoria Ceh (Executive Director), Robin Unger



Dr. Hwang presents Dr. Tykocinski with his President's pin.



Thank you to Pacharee Thienthaworn and Tina Lardner for their roles as lead support staff for the World Live Surgery Workshop: Triple Crown.



Dr. Tykocinski thanks Dr. Jimenez for his service as Vice President.



Dr. Tykocinski thanks Dr. James Harris for his years of service on the Board of Governors.



Dr. Tykocinski thanks Dr. Bessam Farjo for his years of service as Lead Ambassador and Regional Workshops Chair.



Dr. Tykocinski thanks Dr. Paul McAndrews for his service as Treasurer.



Dr. Tykocinski thanks Dr. Ken Williams for his service as the outgoing chair of the Membership Committee.



Drs. Haber and Tykocinski thank Dr. Cotterill for his years of service as chair of the CME Committee.

2019 ISHRS Poster Awards



James E. Vogel, MD, FACS, FISHRS; Garrie Housecock, MD; Lindsey DiTanna, GRNP
Affiliations: Vogel Plastic Surgery, Owings Mills, Maryland, USA

Objectifying Long Term Results of Platelet Rich Plasma for Hair Loss: Does It Really Work?

James E. Vogel, MD, FACS, FISHRS; Garrie Housecock, MD; Lindsey DiTanna, GRNP
Affiliations: Vogel Plastic Surgery, Owings Mills, Maryland, USA

Disclosures: AGELL is used off-label.

2019 Poster Presentation

NOV 13-16



INTRODUCTION

The majority of published reports on PRP efficacy in AGA (Androgenic Alopecia) have a follow-up limited to 8-12 months.

We previously reported our technique and protocol with computer assisted measurement of hair diameter as an objective tool for measuring hair shaft diameter to determine PRP efficacy. (1)

This reporting documented a significant increase in hair shaft diameter utilizing our practice protocol for PRP/AGELL in patients with AGA. The average increase in hair shaft diameter was 17% over baseline at 8 month follow up. A longer follow up with continued protocol treatment, showing significant findings are now available.

OBJECTIVE

To demonstrate, for the first time, objective measurement of hair treated with a PRP/AGELL protocol up to 24 months.

METHODS

Protocol treatment consists of 3 PRP/AGELL scalp injections at 0, 2, and 8 months and then annually thereafter. The use of AGELL is acknowledged to be 'off label.'

PRP is prepared from 22 ml blood using a standard commercially available system. Computerized measurement software and a dermatoscope are used to capture images and measure (in microns) hair shaft diameter in two reproducible areas on scalp using a calibrated system. (fig. 1)

Measurement of hair shaft diameter is performed at baseline, 8 month, and annual visits utilizing a computerized measurement software. (fig. 2)



FIG 1. Computerized Software and Dermatoscope Measurement Technique

A heterogeneous number of patients were also using additional supplements including minoxidil and finasteride. Patients were enrolled from August 2017- August 2019. Inclusion criteria for the current report are protocol patients followed for 24 months (13 of current 103 patients being followed)

RESULTS

13 Patients were followed for 24 months

10 Males and 3 Females, Ages 19-63 at the start of data collection

Initial 8 month data documented a mean percent increase in hair shaft diameter over baseline of 17% with 69% of patients achieving good to excellent results. (fig 2,3)

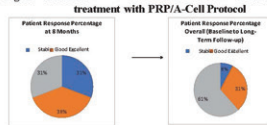
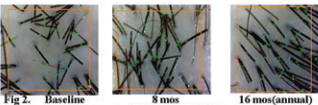


FIG 3. Response to PRP/AGELL at 8 mos with same cohort followed up to 24 months

Follow-up measurements over subsequent 6-12 months showed an additional increase of 13% improvement with a net 34% increase in hair shaft diameter with long term follow up.

From a response perspective long term follow up documented an increase from 69% to 92% of patients achieving good to excellent results. Total time from initial measurement to final long-term measurement was a mean of 17 months (Range 11-24 months). (Fig 2,3)

CONCLUSION

While our reported cohort is small, to our knowledge this is the first objective report of patients treated with a PRP/AGELL protocol for a period greater than 8-12 months. Our findings document, for the first time, that continued protocol treatment with PRP results in progressive improvement of hair shaft diameter beyond the first year of therapy. It is not known whether continued improvement or stability of results will be evident as this long term treatment group continues to receive PRP/AGELL therapy.

References

1. 2018 ISHRS 26th World Congress, Panel on PRP, Hollywood, California 2018

TAKE HOME MESSAGE

Our analytic data supports the clinical impression that PRP/AGELL treatment continues to benefit patients on a long term basis. PRP/AGELL treatment should be maintained at least on an annual or biannual basis once an initial treatment protocol has been completed.

1ST PLACE POSTER WINNER

Objectifying Long Term Results of Platelet Rich Plasma for Hair Loss: Does It Really Work Over Time?

James E. Vogel, MD, FISHRS

FARJO
HAIR INSTITUTE
Imperial College
London



Greg Williams, greg.williams@farjo.com

Understanding the Nature of Stretched Scars

Greg Williams¹, Magdalena Plotczyk², Claire A. Higgins²

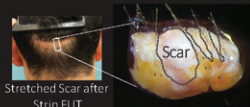
¹ Farjo Hair Institute, London, United Kingdom

² Department of Bioengineering, Imperial College London, United Kingdom

Disclosures: None

Introduction

Following an injury to human skin, the process of wound repair leads to the formation of incompletely regenerated tissue known as a scar. An estimated one hundred million people per year in the developed world alone suffer from excessive scarring. Despite insights into the biology of scar formation provided by previous studies, to date, there are few effective clinical treatments for established stretched scars. Surgical revision often fails to improve the outcome. In Strip Follicular Unit Transplantation (Strip FUT), a linear scar results from the removal of the strip of skin needed for harvesting hair follicles from the occipito-parietal scalp. Patients with loose skin are prone to healing with stretched scars. This observation is referred to as the scalp laxity paradox.



Objectives

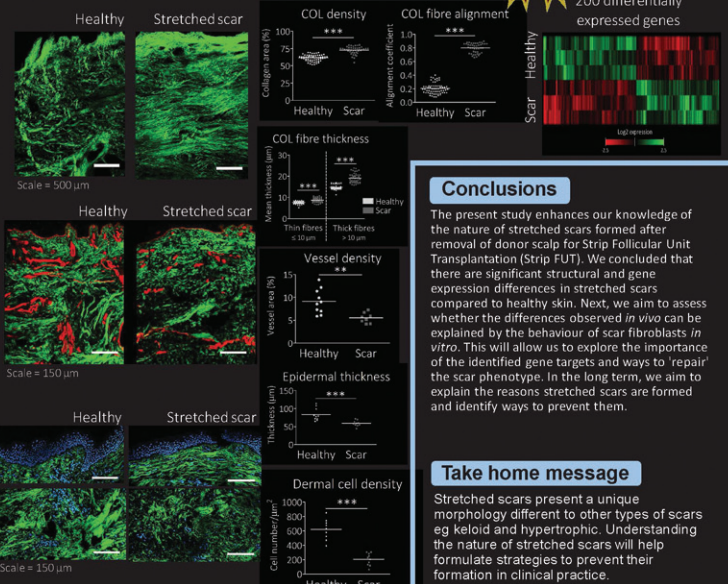
We aim to understand the biology of stretched scars to enable the design of therapeutic strategies for preventing scar formation and improvement in the appearance of already formed stretched scars.

Methods

Human scalp samples of stretched scars were collected from three patients undergoing Follicular Unit Transplantation (FUT). We used Second Harmonic Generation (SHG) imaging to analyse dermal collagen type I (COL) (green). Using immunofluorescence imaging, we quantified the vessel density based on the expression of collagen type IV (red) in the vessel walls. Thickness of epidermis and density of cells in the dermis was quantified based on the number of nuclei stained with DAPI (blue). To test how the unique environment of stretched scars affected the behaviour of cells residing within the scar, we performed an unbiased microarray-based transcriptomic analysis of the dermis of stretched scars and compared them to healthy skin.

Results

We found a significant increase in the thickness and alignment of fibres in scars compared to healthy skin from the same location. In addition, image analysis of the cellular composition of skin layers revealed decreased epidermal thickness and dermal cell density, and substantially reduced vascularization in scars. We performed a statistical analysis on the generated dataset identifying 200 gene transcripts that were significantly ($p < 0.05$) and differentially (fold change > 2) expressed between the dermis of stretched scars and healthy skin dermis. Of these, 106 genes were down-regulated, while 94 were up-regulated in scars compared to the healthy skin baseline. The top molecular and cellular functions of the 200 detected genes included increased cell death and decreased cellular movement, which could explain the previously described observations of structural changes in scars - reduced dermal cell number and reduced vascularization.



Conclusions

The present study enhances our knowledge of the nature of stretched scars formed after removal of donor scalp for Strip Follicular Unit Transplantation (Strip FUT). We concluded that there are significant structural and gene expression differences in stretched scars compared to healthy skin. Next, we aim to assess whether the differences observed *in vivo* can be explained by the behaviour of scar fibroblasts *in vitro*. This will allow us to explore the importance of the identified gene targets and ways to repair the scar phenotype. In the long term, we aim to explain the reasons stretched scars are formed and identify ways to prevent them.

Take home message

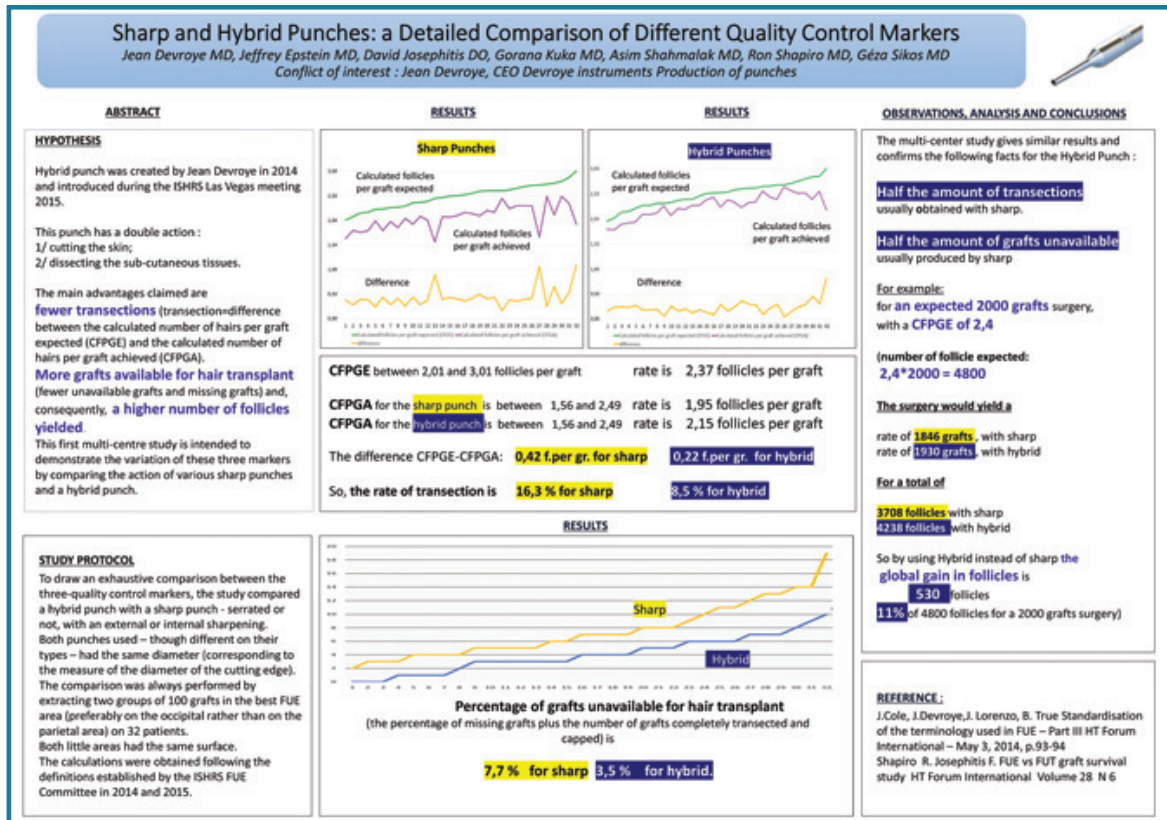
Stretched scars present a unique morphology different to other types of scars eg keloid and hypertrophic. Understanding the nature of stretched scars will help formulate strategies to prevent their formation in clinical practice.

2ND PLACE POSTER WINNER

Understanding the Nature of Stretched Scars

Greg Williams, MBBS, FISHRS

2019 ISHRS Poster Awards



BEST PRACTICAL TIP

Sharp and Hybrid Punches: A Detailed Comparison of Different Quality Control Markets

Jean Devroye, MD, FISHRS

COMING SOON!

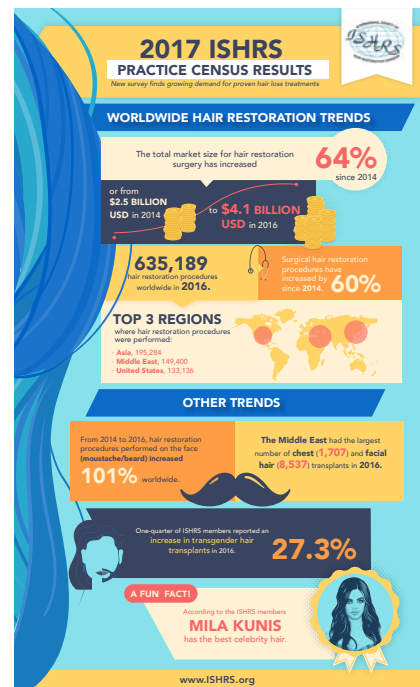
ISHRS 2020 Practice Census

The Communications & Public Education Committee invites all ISHRS members to participate in the upcoming 2020 Practice Census survey.

This web-based survey is slated to open in January 2020 and will help the ISHRS gather current statistics on hair restoration surgery to share with the media and our patients.

More information on the survey will be forthcoming, including tips to start gathering practice data to help you complete the survey quickly. Watch for updates in the coming weeks.

Please help us make the 2020 Practice Census a success. When more of our physician members participate, the more reliable our data will be!







Regional Society Profile

Introduction to the Arab Association for Hair Transplantation (AAHT)

The Arab Association for Hair Transplantation (AAHT) aims to form a scientific gathering that presents everything new in the field of hair transplantation through the organization of conferences, workshops and symposia, in which the elite experts of hair transplantation in the world and the Arab world participate in cooperation with the International Society of Hair Restoration Surgery. The Association also aims to include the largest number of doctors working and interested in hair transplantation to sharpen their talents and develop their expertise by presenting on all of the issues related to hair transplantation.



1. **What is the name of your hair society? Website? Contact email?**
Arab Association for Hair Transplantation (AAHT),
www.AAHT-egy.org, info@aaht-egy.org
2. **When was it founded?**
September 2018
3. **Do you have regular meetings, conferences, or workshops?**
Our 2nd annual meeting was held September 11, 2019, at the Nile Ritz Carlton Hotel in Cairo. Invited guests included Drs. Robert True, Jerry Cooley, Nilofer Farjo, and Bessam Farjo.
4. **Who are the office holders?**
President and Founder: Dr. Ahmed Adel Noreldin, Egypt
Honorary President: Dr. Bessam Farjo, UK - Iraq
Vice President: Dr. Riad Roomi, United Arab Emirates
Secretary General: Dr. Shadi El Maghraby, Egypt
Asst. Secretary General: Dr. Marwan Nouredin, Egypt
Treasurer: Dr. Mohamed Ellassi, Lebanon
5. **What is the region served?**
Arab countries and Africa
6. **How many society members do you have?**
68 (as of 9/2018)
7. **How many hair practitioners are there in your country and how many are members of your society?**
Although the actual number is not known, I would guess more than 100. Of those, 40 are members of the AAHT.
8. **Is advertising allowed and are there different rules for medical advertising?**
Unfortunately, advertising is not strictly controlled.
9. **Have the general public embraced hair restoration or is it still in its infancy?**
Hair restoration surgery is well embraced in our region.
10. **Is the surgery mostly FUT or FUE?**
FUE
11. **Are robots used?**
None currently
12. **Is anybody investigating cell-based therapies?**
We frequently use adipose-derived stem cells in our office.
13. **What are your policies concerning delegation to technicians and membership of technicians in your society?**
Technicians are not allowed to be members of the association, however, there are training courses throughout the year. Technicians should not be allowed to excise FUE grafts, make recipient sites, or insert sharp implanters.
14. **What are the membership categories?**
Founding Member: All have priorities in chairing scientific events and in social services provided by the AAHT.
Fellow: All are doctoral degree holders and the equivalent with hair transplantation experience as accepted by the Board or Trustees (BOT).
Affiliate Member: Applicants can be proposed and accepted by vote of the Board of Trustees to have training on hair transplantation.
Honorary Member: These are Honorary Aesthetic Academy of Egypt (AAEgy) and AAHT Presidents, Immediate Past President of AAEgy, and Chairman of the Organizing National Committee hosting the AAHT Congress for that year.

HAIR LOSS DIAGNOSIS COURSE FOR THE NON-DERMATOLOGIST

What You MUST Know If You Are Performing Hair Transplantation Surgery

FREE VIEWING FOR ISHRS PHYSICIANS

- ▶ Over 3.5 hours of lectures and discussion
- ▶ Recorded at the ISHRS 2017 World Congress Prague
- ▶ No CME credits issued for watching this course
- ▶ Internet/online video files.

LEARNING OBJECTIVES

Upon completion of this course you will be able to:

- ▶ Describe many hair loss disorders as well as common scalp dermatologic conditions that the hair transplant surgeon may encounter.
- ▶ Discuss the diagnosis and treatment of many non-androgenetic alopecias.
- ▶ Recognize when hair restoration surgery is indicated.

COURSE DESCRIPTION

The course covers all aspects of hair loss diagnoses, classification, treatment, and management. An emphasis is placed on understanding the anatomy and the hair growth cycle to better understand the pathologic consequences of hair loss. The course includes an in depth review of male and female pattern hair loss as well as diagnosing and managing cicatricial forms of alopecia. Common inflammatory scalp conditions is also reviewed to insure participants have a better understanding of managing scalp disorders as well as recognizing benign and malignant scalp tumors that may arise in the consultation process. An emphasis on recognizing alopecia areata and managing hair loss in women is discussed as well as understanding PRP and its therapeutic indications.



COURSE OUTLINE	running time
Welcome & Opening Remarks Ricardo Mejia, MD	06:01
Hair Loss Diagnosis, Anatomy and Classification René Rodriguez, MD	20:01
Alopecia Areata, Diagnosis and Management Ivan S. Cohen, MD, FISHRS	22:29
Cicatricial Alopecias Nicole E. Rogers, MD, FISHRS	29:08
Inflammatory Scalp Disorders/Lumps and Bumps Jennifer Krejci, MD	24:08
Q&A All Panelists	13:25
Dermoscopy/Trichoscopy Lessons Learned Aron Nusbaum, MD	20:12
Diagnosing Hair Loss in Women Neil S. Sadick, MD	36:01
Scalp Cancers Ricardo Mejia, MD	13:55
PRP Basics Neil S. Sadick, MD	24:10
Q&A All Panelists	11:04



www.ishrs.org

2020 Meetings Calendar

Please follow this link to a listing of upcoming HRS meetings: <https://ishrs.org/upcoming-events/>

2020 ISHRS directly sponsored/supported meetings:

March 19-22, 2020

Cowgirl Hair Loss Workshop
An ISHRS Regional Workshop
International Society of Hair Restoration Surgery
Houston, Texas, USA
For more information: www.CowgirlHairLoss.com

June 12-14, 2020

EURO 2020 Athens:
European World Live Surgery Workshop
International Society of Hair Restoration Surgery
Athens, Greece
For more information: www.ishrs.org

July 24-25, 2020

Hair Transplant 360 Cadaver Workshop & FUE Hands-on Workshop
In collaboration with the International Society of Hair Restoration Surgery
St. Louis, Missouri, USA
<http://pa.slu.edu>
For more information: pa@slu.edu

October 21-24, 2020

28th World Congress of the ISHRS
Westin Playa Bonita
Panama City, Panama
For more information: www.28thannual.org



Plan your
2020 meeting
schedule!



The ISHRS is the leader in high-quality education for hair restoration surgeons. The ISHRS has achieved the highest level of accreditation to organize education for physicians from the renowned Accreditation Council for Continuing Medical Education.




Cowgirl Hair Loss Workshop

An ISHRS Regional Workshop in
Houston Texas | March 19-22, 2020

A contemporary approach to the complex problem of the diagnosis and treatment of hair loss in women. The program will focus on integrating the medical, surgical, SMP, and even tissue culturing treatment options.

Includes Saturday evening at the Championship Finals of the Houston Rodeo

Register Today!

+1-713-974-1808
www.CowgirlHairLoss.com

So she can tip her hat with confidence



7th AAHRS SCIENTIFIC MEETING

features
FUE - Asia
24 - 26 APRIL 2020



MOHAMMAD HUMAYUN MOHMAND, MD
(AAHRS PRESIDENT)



WEN-YI WU, MD
(CHAIRMAN)



DAMKERNG PATHOMVANICH, MD
(Organizer/Coordinator)

Chulalongkorn Hospital
26 APRIL 2020 For Live Surgery

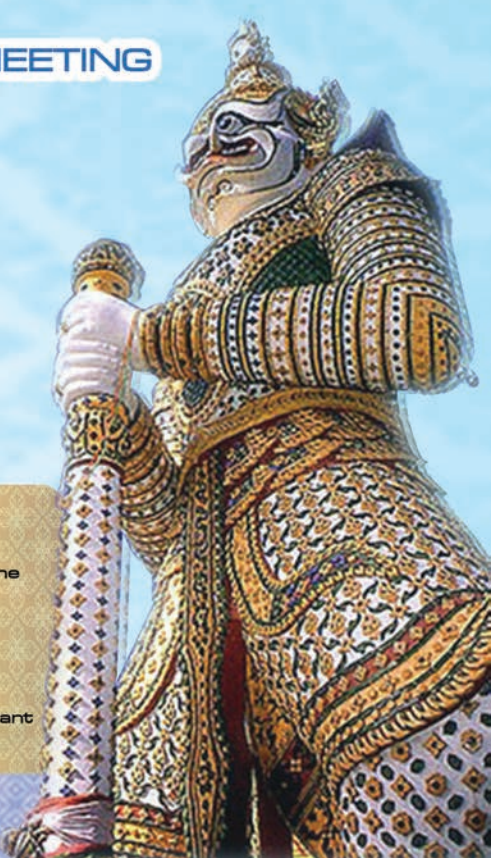
Pullman Bangkok King Power Hotel
24 - 25 APRIL 2020 For Scientific Session

Main Topics

- FUE with different machine
- FUT
- Combo
- SMP
- Beard/Body Hair Transplant
- PRP Stem Cell

Please Visit
WWW.AAHRSASIA.ORG FOR MORE INFORMATION

Please send your abstract to
wu@hair78388.com
The date line is January 31st, 2020





INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY |
EUROPEAN WORLD LIVE SURGERY WORKSHOP |
EURO2020 | ATHENS, GREECE

EUROPEAN WORLD LIVE SURGERY WORKSHOP EURO 2020 ATHENS



The city of Athens, rich in culture and heritage, welcomes the world's most complete and detailed Hair Restoration Live Surgery Workshop. Mark your calendar and plan to attend if you wish to learn and perform yourself on patients while supervised by the best experts in the field of Hair Restoration Surgery!

SAVE THE DATE! JUNE 10-14, 2020

2 full live surgery days | FUE & FUT hands-on workshop |
SMP hands-on workshop | Scar revision |
Beginners & Advanced lectures & discussions | Combination FUE/FUT |
Eyebrow HT | Long Hair HT | Adjunctive therapies | PRP | Stem cells

Registration will open in Dec. 2019 with exclusive early bird rates don't miss it!
For more information: info@euro2020ishrs.org



12th Annual

Hair Transplant 360 WORKSHOP

JULY **24** TO **25** 2020
ST. LOUIS, MISSOURI, USA

Comprehensive Hair Transplant Course: FUT & FUE Hands-on Course

Two Parallel Courses for Physicians & Staff

Sign Up Your Staff for The Intensive Hands-On Assistant Course!

- Newly Designed Course Format
- 2 Information Packed Days
- Latest High-Definition Live 3D Lectures and Surgery Dissection
- Extensive, Hands-on Cadaver Workshop with Low Student-to-Faculty Ratio
- Unique Training Models



Course Director: **Samuel M. Lam, MD, FACS, FISHRS**

Assistant Course Director: **Emina Vance, MD**

Honored Guest Speakers: **Ricardo Mejia, MD** and **Ken Washenik, MD, PhD**
and **International World-Class Faculty**

In collaboration with:



slu.edu/medicine/pase



SAINT LOUIS
UNIVERSITY
— EST. 1818 —

- ▶ Hairline Design
- ▶ Donor Harvest/Closure
- ▶ Recipient Site Creation
- ▶ Graft Dissection
- ▶ Graft Placement
- ▶ PRP, Laser, Etc.
- ▶ Crown Design
- ▶ Female Hairline Design
- ▶ Temporal Point Design
- ▶ Graft Calculation
- ▶ Marketing
- ▶ Consulting
- ▶ Medical Treatment
- ▶ Critical Thinking
- ▶ Quality Control
- ▶ FUE & FUT

Classified Ads

Seeking Hair Transplant Physician

We want to hire a hair transplant surgeon. Join our awesome team! We are looking for an employee first and would definitely want to transition you to a partner. We specialize in facial and body plastic surgery. We are located in downtown Bellevue—home of Microsoft, Bill Gates, and a fast growing city that is 10 minutes from Downtown Seattle, Washington, USA.

Applicants must reside in the United States and have a current active Medical License.

Please contact us at contactus@afbplasticsurgery.com.

Seeking Hair Transplant Physician and Technicians

Anderson Center for Hair in Atlanta, Georgia is looking for a full-time hair restoration physician and full-time technicians. We are a state-of-the-art, brand-new boutique center. We perform one procedure per day, with emphasis on quality, ethics, and natural results...not quantity. On-the-job training available for physicians. Technicians will require experience, with references required. Outstanding, friendly working environment, salary, benefits, insurance, 401k, vision, dental, etc.

Please email your résumé to jobs@andersonhsc.com.

Seeking Hair Transplant Surgeon

New start up clinic in St. Louis, MO is seeking an experienced hair transplant surgeon. Must be eligible for a Missouri medical license and willing to travel to our clinic 2-5 consecutive days per month. This is a great source of supplemental income to your existing practice. Please email your résumé to gakreyling@hotmail.com.

Seeking Partner/Physician for Hair Transplant Center in San Francisco, CA

Parsa Mohebi Hair Restoration seeks a Partner/Physician as the Medical Director of our San Francisco office. This physician is responsible for patient care. All training provided. Must possess exceptional hand-eye coordination, have a valid current California medical license and be research oriented with good writing skills. We offer a generous salary and benefits including health and dental insurance and a 401k.

Send your résumé and cover letter to: Info@parsamohebi.com.

For Sale: ARTAS® Robotic System with Chair

2015 ARTAS Robotic System for sale. System includes patient chair and was only used a few times. The system was originally purchased in 2015 for \$250,000 and is in excellent condition. Asking price of \$80,000 or best offer.

Email info@parsamohebi.com for more details or to make an offer.

For Sale: ARTAS® 9x

ARTAS 9x. 2018 model. Very fast and extremely reliable! Factory support is available. Effective harvesting and advertising tool. Deep discount off the new price. This is a perfect buy for someone who wants to add a first or second machine to their practice. Use the ARTAS reputation and company advertising to bring in new clients!

Call 1-601-499-0186 to learn more about purchasing this fantastic machine.

Calendar of Hair Restoration Surgery Events

<http://www.ishrs.org/content/upcoming-events>

DATES	EVENT/VENUE	SPONSORING ORGANIZATION(S)	CONTACT INFORMATION
FEB 26-29, 2020	6th Annual Latin American FUE Workshop <i>Cancun, Mexico</i>	Organizing Chairman: Sara L. Salas, MD	www.informes@workshop-latc.com
MAR 6-8, 2020	HAIRCON 2020 11th Annual Congress of AHRS, India <i>Mumbai, India</i>	Association of Hair Restoration Surgeons – India Organizing Chairman: Sandeep S. Sattur, MCh www.ahrsindia.org	www.haircon2020.com drsattur@yahoo.com
MAR 19-22, 2020	ISHRS Regional Workshop: Cowgirl Hair Loss Workshop—Art & Perfection, Female Hair Loss <i>Houston, Texas, USA</i>	International Society of Hair Restoration Surgery Hosted by Carlos J. Puig, DO, FISHRS	cpuig@hairdoctexas.com
APR 24-26, 2020	7th AAHR Scientific Meeting: FUE - Asia <i>Bangkok, Thailand</i>	Asia Association of Hair Restoration Surgeons	www.aahrsasia.org
MAY 22-24, 2020	Italian Society for Hair Science and Restoration International Conference <i>Florence, Chianti</i>	Società Italiana di Tricologia (Sitri)	info@sitri.it
* JUN 12-14, 2020	ISHRS Euro 2020: European World Live Surgery Workshop <i>Athens, Greece</i>	International Society of Hair Restoration Surgery	http://euro2020ishrs.org/
JUN 18-20, 2020	19th EHRS Meeting <i>Sheffield, UK</i>	European Hair Research Society	www.ehrs2020.org
* JUL 24-25, 2020	12th Annual Hair Transplant 360 Cadaver Workshop & FUE Hands-On Workshop <i>St. Louis, Missouri, USA</i>	Saint Louis University School of Medicine, Practical Anatomy & Surgical Education In collaboration with the International Society of Hair Restoration Surgery http://pa.slu.edu	pa@slu.edu
OCT 19-20, 2020	3rd SILATC Meeting & Live Surgery Workshop <i>Panama City, Panama</i>	Iberolatinoamerican Society of Hair Transplant Surgery	Drs. David Perez-Meza/ Marie Schambach Silatcpanama2020@gmail.com
* OCT 21-24, 2020	28th World Congress of the ISHRS Westin Playa Bonita <i>Panama City, Panama</i>	International Society of Hair Restoration Surgery www.28thannual.org	www.28thannual.org

* 2020 meetings that qualify for the ISHRS member educational maintenance requirement

REMINDER

ISHRS full **Members** and **Fellow Members** are required to attend 1 ISHRS-approved meeting every 3 years to maintain their member category.

ISHRS WORLD CONGRESS SCHEDULE

28TH WORLD CONGRESS

October 21-25, 2020
Panama City | Panama

29TH WORLD CONGRESS

October 20-23, 2021
Lisbon | Portugal

Vision: To establish the ISHRS as a leading unbiased authority in medical and surgical hair restoration.

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

2019–20 Board of Governors

President | Francisco Jimenez, MD, FISHRS
 Vice President | Arthur Tykocinski, MD, FISHRS
 Secretary | Paul J. McAndrews, MD, FISHRS
 Treasurer | Melvin L. Mayer, MD, FISHRS
 Immediate Past President | Arthur Tykocinski, MD, FISHRS
 Gholamali Abbasi, MD, FISHRS
 Conradin von Albertini, MD, FISHRS
 Jean M. Devroye, MD, FISHRS
 Nilofer P. Farjo, MBChB, FISHRS
 Sharon K. Keene, MD, FISHRS
 Ricardo Mejia, MD
 Marcelo Pitchon, MD, FISHRS
 Paul T. Rose, MD, JD, FISHRS
 Robert H. True, MD, MPH, FISHRS
 Bradley R. Wolf, MD, FISHRS

2019–20 Chairs of Committees

2020 World Congress Scientific Program Committee | Bradley R. Wolf, MD, FISHRS
 American Medical Association (AMA) House of Delegates (HOD) and
 Specialty & Service Society (SSS) Representative | Carlos J. Puig, DO, FISHRS
 (Delegate) | Paul T. Rose, MD, JD, FISHRS (Alternate Delegate) | Ricardo Mejia, MD
 (Alternate Delegate)
 Annual Giving Fund Chair | John D.N. Gillespie, MD, FISHRS
 Audit Committee | Ken Washenik, MD, PhD, FISHRS
 Communications & Public Education Committee | Sharon A. Keene, MD, FISHRS
 CME Committee | Robert S. Haber, MD, FISHRS
 Regional Workshops Subcommittee | Conradin von Albertini, MD, FISHRS
 Ethics Committee | Gregory Williams, MBBS, FISHRS
 Exhibits & Advertising Review Committee | Robert J. Reese, DO, FISHRS
 Fellowship Training Committee | Carlos J. Puig, DO, FISHRS
 Finance Committee | Kapil Dua, MBBS, MS, FISHRS
 FUE Advancement Committee | James A. Harris, MD, FISHRS
 International Relations Committee | David Perez-Meza, MD, FISHRS
 Membership Committee | Luis A. Nader, MD, FISHRS
 Nominating Committee | Francisco Jimenez, MD, FISHRS
 Past-Presidents Committee | Sungjoo (Tommy) Hwang, MD, PhD, FISHRS
 Pro Bono Committee | Jerzy R. Kolasinski, MD, PhD, FISHRS
 Scientific Research, Grants, & Awards Committee | Dow B. Stough, MD
 Surgical Assistants Committee | Marwan Noureldin, MBChB
 Surgical Assistants Awards Committee | Jana Shafer
 Ad Hoc Committee on Issues Pertaining to the Unlicensed Practice of Medicine |
 Ricardo Mejia, MD
 ISHRS Ambassadors for Patient Safety | Konstantinos Anastassakis, MD, PhD, FISHRS
 Ad Hoc Committee on Regulatory Issues | Paul T. Rose, MD, JD, FISHRS
 Subcommittee on European Standards | Gregory Williams, MBBS, FISHRS
 ISHRS Representative to CEN/TC 403 | Gregory Williams, MBBS, FISHRS
 FUT Guidelines Task Force | TBA
 Task Force on Artificial Hair Fibers | TBA
 European Branch Task Force | Bessam K. Farjo, MBChB, FISHRS

Global Council of Hair Restoration Surgery Societies

Membership proudly includes:

American Board of Hair Restoration Surgery
 American Society of Hair Restoration Surgery
 Arab Association of Hair Transplantation
 Argentine Society of Hair Recovery
 Asian Association of Hair Restoration Surgeons
 Association of Hair Restoration Surgeons-India
 Australasian Society of Hair Restoration Surgery
 Brazilian Society of Hair Restoration Surgery
 British Association of Hair Restoration Surgery
 China Association of Hair Restoration Surgery
 French Society of Hair Restoration Surgery
 German Society of Hair Restoration
 Hair Restoration Society of Pakistan
 Hellenic Academy of Hair Restoration Surgery
 Ibero Latin American Society of Hair Transplantation
 International Society of Hair Restoration Surgery
 Italian Society for Hair Science and Restoration
 Japanese Society of Clinical Hair Restoration
 Korean Society of Hair Restoration Surgery
 Paraguayan Society of Hair Restoration Surgery
 Polish Society of Hair Restoration Surgery
 Swiss Society for Hair Restoration Surgery
 Thai Society of Hair Restoration Surgeons



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

- Articles should be written with the intent of sharing scientific information with the purpose of progressing the art and science of hair restoration and benefiting patient outcomes.
- If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail.
- Articles submitted with the sole purpose of promotion or marketing will not be accepted.
- Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
- Trademarked names should not be used to refer to devices or techniques, when possible.
- Although we encourage submission of articles that may only contain the author's opinion for the purpose of stimulating thought, the editors may present such articles to colleagues who are experts in the particular area in question, for the purpose of obtaining rebuttal opinions to be published alongside the original article. Occasionally, a manuscript might be sent to an external reviewer, who will judge the manuscript in a blinded fashion to make recommendations about its acceptance, further revision, or rejection.
- Once the manuscript is accepted, it will be published as soon as possible, depending on space availability.
- All manuscripts should be submitted to forumeditors@ishrs.org.
- A completed Author Authorization and Release form—sent as a Word document (not a fax)—must accompany your submission. The form can be obtained in the Members Only section of the Society website at www.ishrs.org.
- All photos and figures referred to in your article should be sent as **separate** attachments in JPEG or TIFF format. Be sure to attach your files to the email. Do NOT embed your files in the email or in the document itself (other than to show placement within the article).
- Images should be sized no larger than 6 inches in width and should be named using the author's last name and figure number (e.g., TrueFigure1).
- Please include a contact email address to be published with your article.

Submission deadlines:

February 5 for March/April 2020 issue
 April 5 for May/June 2020 issue
 June 5 for July/August 2020 issue
 August 5 for September/October 2020 issue
 October 5 for November/December 2020 issue

Please note submission address:

forumeditors@ishrs.org

Classified Advertising Guidelines for Submission

To place a Classified Ad in the *Forum*, email cduckler@ishrs.org. In your email, include the text of what you'd like your ad to read. You should include specifics in the ad, such as what you offer, the qualities you're looking for, and how to respond to you.

Classified Ads cost \$100 per insertion for up to 75 words. You will be invoiced for each issue in which your ad runs. The *Forum* Advertising Rate Card can be found at the following link:

<https://ishrs.org/media/advertising-and-sponsorship/>

Submit your Classified Ad to:
cduckler@ishrs.org





SAVE THE DATE

OCTOBER 21-24

Panama 2020

ISHRS 28TH WORLD CONGRESS

**Connecting Ideas and Surgeons
from Around the World**

The ISHRS is the leader in high-quality education for hair restoration surgeons. The ISHRS has achieved the highest level of accreditation to organize education for physicians from the renowned Accreditation Council for Continuing Medical Education.



HAIR TRANSPLANT FORUM INTERNATIONAL

International Society of Hair Restoration Surgery

1932 S. Halsted St., Suite 413

Chicago, IL 60608 USA

Forwarding and Return Postage Guaranteed

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

28TH WORLD CONGRESS
Panama
2020

Connecting Ideas and Surgeons
from Around the World



SAVE THE DATE **OCTOBER 21-24**