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FORUM

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2024

IN THIS ISSUE

Hypothesis of Hair Loss from Micro Metabolic Dysfunction and Nutritional Management without Finasteride

Androgenetic Alopecia Is Not Synonymous with Androgenic Alopecia

Morphological Classification of Beard Hair in Men

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ABSTRACT

The presence of beards in men has intrigued humans throughout history, drawing interest from various fields. This article proposes a universal morphological classification for the human beard, aiding comparative studies and medical communication.

Evaluation of hair and beard transplant patients was conducted on 250 males at the Speranzini Clinic over three years. Types of beard presentation were categorized based on morphological features. The classification was progressive from type I to VI. In our sample, the most frequent beard pattern was type V (42.4%, n = 106), with a mean age of 41 (range 21-66 years old).

The proposed classification offers a standardized approach for beard evaluation across diverse populations. Further research is warranted to validate the findings in different groups. Despite potential ambiguities, the classification was efficiently applied in the studied population.

Keywords: beard, body hair, facial hair, hair transplantation

INTRODUCTION

The presence of facial hair in men has long been a topic of fascination, stimulating interest across diverse realms of human inquiry. A marked reduction in overall body hair distinguishes Homo sapiens from other anthropoids.[1] Unlike other non-human primates, humans differ by the absence of fur and a lack of hair coloration regional patterning.[2] Within the evolutionary context, sexual selection offers an alternative framework to natural selection for examining the development of facial hair in men. Intra-sexual selection among males favors the emergence of sexually dimorphic traits that enhance or signal competitive prowess.[1] Beards contribute to perceptions of male masculinity, social maturity, confidence, aggression, and age. While these attributes are valued by females in potential mates, investigations into the relationship between facial hair and male facial attractiveness have yielded conflicting findings.[1,3-5]

During prenatal development, the fetus is covered in primary lanugo hairs, which are subsequently replaced by secondary vellus hairs during early post-natal life. Throughout infancy, childhood, and adolescence, vellus hairs differentiate into tertiary terminal hairs in specific body regions, primarily under the influence of androgens, although no additional follicles are formed. Beard growth undergoes significant expansion during puberty, continuing until the mid-30s.[1,2,6-8]

Morphological disparities have been identified between beard and scalp hair, encompassing variations in cross-sectional area, shape, number of cuticle layers, cuticular pattern, and medullation. Facial hair fibers display greater irregularity in shape compared to scalp fibers, with nearly double the number of cuticle layers. Furthermore, cross-sectional area for beard hair has been observed to be 70-100% larger than that of corresponding scalp fibers.[2,9,10] Minor variations in fiber size, geometry, and pigmentation are influenced by ethnic origin.[9] Additionally, different ethnic groups exhibit variations in the pattern, distribution, and density of beard and body hair. Indians, Middle Easterners, and Caucasians typically exhibit higher hair density in their beards and mustaches compared to individuals of Oriental descent.[1,5,11]

Given the multifaceted importance of facial hair in men, this article proposes a universal morphological classification system for human beards, aiming to facilitate comparative studies of facial hair across different populations, aid in the understanding of patients considering beard transplantation regarding

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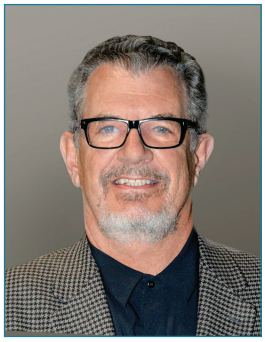

President's Message

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

Reflections on Leadership and Passion

This is my last President's Message and my opening farewell. It's been quite an experience acting as your 32nd president. What's it like to be president of the ISHRS? I start every day checking my phone and emails to see if there is anything that needs immediate attention (a crisis!). I've been lucky enough not to be confronted with a continental virus (zika), a global pandemic (COVID), or other major problems, although I do have a few months left! Most of my tasks have been positive and have revolved around the main function of the ISHRS: education. The Executive Committee (president, immediate past-president, vice president, secretary, and treasurer) approves all faculty for the world congresses, workshops, and webinars. The president leads all Executive Committee and Board of Governors (BOG) meetings. These meetings are quite an experience that can last up to five hours. It's a democracy where all important issues are decided by a majority vote, there is no decision made by one person.

> ***While there are different paths that get you to a leadership position within our society, one thing remains constant: to be successful, you must be ethical, active, informed, and accountable, and you must always prioritize the best interests of the ISHRS and its members.***

As a team, we spend a lot of time investigating and deciding where future meetings and workshops will be held, which can be complicated. There are other issues that need to be addressed, not infrequently caused by doctors behaving badly. These are just some of the tasks. None of these activities would have been possible without the wonderful staff of the ISHRS. They do the research and the groundwork, and they present to the board most of the information upon which decisions are made. There aren't enough superlatives to describe the incredible job done by Victoria Ceh (Executive Director), Melanie Stancampiano (Programs Director), Jule Uddfolk (Meeting & Exhibits Manager), Katie Masini (Membership Manager), and Cheryl Duckler (*Forum* Managing Editor) to name a few. It has been a pleasure to work with the staff and BOG over the last eight years that I have been in leadership positions.

How does one get into a "leadership" position? For me it started in 2014 after I wrote an article for the *Forum* entitled, "The Art and Craft of Recipient Site Creation and Graft Placement" (24(2):41-49). Since these tasks are rate-limiting steps in the process, I thought it was important to emphasize the nuances. The article was placed on the front page. When I started in the field, getting published in the *Forum* was a dream. After my article was published, I was asked by then co-editors, Bob True and Mario Marzola (many thanks to both), to take over the *Forum*'s Cyberspace Chat column. After three years as a columnist, I was then asked to be co-editor alongside Andreas Finner, and we published 18 issues over three years. While it was the most difficult and time-consuming leadership position (with deadlines every two months), it was also the most rewarding, and it was a pleasure to work with Andreas and Cheryl. From dreaming about being published to being responsible for every word published, still amazes me. It was a great privilege.

Since I was already so connected to all aspects of the ISHRS, I next volunteered to be Program Chair for the 2020 World Congress thinking it had to be less time consuming than the co-editor position. Due to COVID, however, I was mistaken. We had to change everything, and this meant learning about Zoom and "platforms". It became complicated, but with the help of the ISHRS staff and members, we pulled off a great meeting. I was then asked to be on the Board of Governors; I became Secretary, then Vice President, and now President. This final message will be my 49th column after six years' worth of columns as *Forum* columnist and co-editor in addition to columns as World Congress Program Chair and ISHRS President—that's eight years, with six columns per year, plus one column as Editor Emeritus. While there are different paths that get you to a leadership position within our society, one thing remains constant: to be successful, you must be ethical, active, informed, and accountable, and you must always prioritize the best interests of the ISHRS and its members.

But really none of the above has anything to do with my real job: providing the best results for my patients, most of whom have no idea what the ISHRS is or that I am the current president. That is my main interest and passion: to make hair grow. It's a passion I take seriously with every patient and with every hair—every hair counts. And I have been successful in doing that. What is my secret? There is no secret. It's a matter of consistency over intensity, progress over perfection, and fundamental over fads, over and over again. As Aristotle said, "Excellence is never an accident. It is always the result of high intention, sincere effort, and intelligent execution." The patient and the interests of the patient, not the doctor, always come first.

Speaking of intelligent execution, you will be surprised and amazed at the intelligent program for the upcoming World Congress in Denver assembled by Program Chair Henrique Radwanski and the Scientific Committee. Historically, the next ISHRS meeting has always exceeded the prior meeting. After the New Delhi meeting last year, which had been exquisitely organized by Greg Williams, I had my doubts that this tradition could endure. But after seeing the program for this year's meeting, I have no doubt that the tradition will be maintained.

I look forward to seeing everyone in Denver. ■

Co-Editors' Message

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We are writing this message with excitement for the upcoming 32nd World Congress scheduled for October 17-19 in Denver, Colorado. As ISHRS President Dr. Brad Wolf notes in his message, we have a very intelligent program arranged. Be sure to read Program Chair Dr. Henrique Radwanski's message for exciting details on the upcoming meeting. Education through meetings and workshops is an outstanding resource in our field, and we thank Dr. Parsa Mohebi for providing a summary of the recent 15th Annual Hair Transplant 360 Workshop. Staying on the education theme, you won't want to miss Dr. Steven Gabel's ABHRS President's Corner, which provides updates on exams administered, protocol development, information on the September Awareness Webinar, and a reminder to stop by the ABHRS booth at the World Congress.

We know you'll enjoy Dr. Sara Wasserbauer's Hair's the Question as she focuses on the important history of the hair restoration field and of the ISHRS. This quiz highlights the importance of attending and presenting at meetings like the upcoming World Congress, mentoring doctors, and publishing research to contribute to the future of the field as our specialty continues to write its history.

Drs. Solon Eduardo Gouveia Souza and Mauro Speranzini lead this issue with an article that introduces a new morphological classification for beard hair in men. This is a potentially useful tool both for the clinical practice of medicine and in research that would allow physicians to easily, concisely, and consistently describe patterns of facial hair upon initial presentation and use this knowledge to monitor treatment response. Words often cannot communicate a visual pattern as clearly as a photo, and as the authors discuss, this new classification system can also be used to demonstrate to patients their current pattern and reasonable expectations as to a reasonable and realistic outcome following beard transplant.

Another original article in this issue is by Drs. Rajendrasingh Rajput and Balvant Arora on the role of metabolic dysfunction in androgenetic alopecia and the potential efficacy of a nutritional supplement. Additionally, there is an important short article written by Victoria Ceh that succinctly highlights the difference between the terms andro**genetic** alopecia and andro**genic** alopecia, which are often incorrectly used synonymously.

The July/August issue of the *Forum* focused on surgical eyebrow restoration, and in this issue's Literature Review, Dr. Guillermo Guerrero offers important updates on recent articles in the medical literature on both medical and surgical eyebrow restoration. Following last issue's special tribute to Dr. Jung Chul Kim, the Notable Articles Project features Dr. Kim's 2004 article, "Improving Survival of Follicular Unit Grafts." Commentary is provided by Dr. Jerry Cooley, who nicely summarizes updates on the topic since that time and calls for further research on the optimization of graft survival.

Editor Emeritus Dr. Francisco Jimenez offers useful and practical tips on how to start writing relevant and well-received scientific papers. On the note of writing scientific papers, this is a great time to remind our readers that the *Forum* encourages you to share your knowledge, your expertise, and the results of your research with your colleagues within the pages of this journal. We welcome submissions on a wide array of topics including novel surgical techniques and modifications, reports of interesting cases or complications, non-surgical medical and procedural treatments for hair loss, and relevant information on hair growth and loss.

We have numerous ways for our members to contribute to this journal with diverse categories for submissions such as an original scientific article, a commentary on a past article for the Notable Articles Project, a Letter to the Editor, a personal case review for Complications & Difficult Cases, and/or a procedure or method for the How I Do It column. To be considered for publication, go to https://www.ishrs-htforum.org/content/authors and 1) download and complete the *Article Submission Guidelines and Checklist*, 2) have all authors download and complete their own *Author Authorization and Release Form*, and 3) email all forms along with your written submission (in a Word document) to forumeditors@ishrs.org. We look forward to reading about and sharing what others are doing and learning in the field of hair restoration. ■

Notes from the Editor Emeritus, 2008–2010

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Can a hair transplant surgeon write scientific papers? Yes, but first read, read, read!

I am often asked the question: "What do I need to do to give presentations at ISHRS meetings or publish articles in scientific journals?" While the inquirer may hope for some enlightened and original answer, I can see the disappointment in their face when I simply say: "Plan and perform a study, and then send the results and conclusions as an abstract to the Scientific Committee or as a manuscript to the editor's journal." So, the question that should really be asked is: "What do I need to do to plan and perform a study (clinical or experimental) that might result in its potential presentation/publication?" In this column, I will offer reflections based on my personal experience as a dermatologist and hair transplant surgeon who has published and edited enough papers and textbook chapters to dare to give what, hopefully, will be some useful advice.

1. You need to read a lot if you want to formulate a research question. The first thing you must do before starting a research study is to specifically define the question you are trying to answer. An example of a research question would be: What is the hair growth survival rate of hair grafts harvested from the beard and transplanted in the balding area? Countless questions can be asked, but they tend to occur more easily to people who have developed a scientific mind and who have a solid background knowledge of the topic they are interested in. This is why it tends to be senior researchers who propose research ideas to PhD students and not the other way around.

A scientific mind is developed over time by reading a variety of journals, attending meetings, discussing relevant topics with colleagues, and participating in and performing research work. Personally speaking, inspirational ideas for research studies come to me by reviewing articles and doing frequent literature searches. More pragmatically, I would recommend checking PubMed, a free online web resource, every 2-3 months for the latest publications in hair transplantation or any other hair-related topic you are interested in. Simply scan quickly over the abstracts and read those that appeal to you the most. I can assure you that the more PubMed screening you do the more likely you are to come across inspirational ideas that will help you plan a clinical or experimental hair research study. I would also advise you to read every issue of this journal (*Forum*) plus *Dermatologic Surgery*. The more you read, the better.

2. If you conduct a study but do not publish the results, it is as if the study was never conducted at all. Whenever I hear a colleague saying something like, "I did a study on this topic and we found that … but we never published it," I am perplexed as to how they could have wasted so much time and effort. If you don't publish the results of your study, why bother doing it in the first place? The ultimate goal of any research study is to communicate the results to the scientific community and, in doing so, inspire others to do the same. This inspiring reaction contributes to the advancement of the field.

3. Follow established tips for writing a good manuscript. Though it may be true that some people are more naturally gifted than others when it comes to writing manuscripts, I can assure you that anybody can do a good job with sufficient patience and persistence. If a well-performed study is not published, it will commonly be due to a problem of procrastination because today there are so many journals that it should always be possible to find one happy to accept your manuscript. However, if a study is not written up and sent for publication soon after it is finished, it is not uncommon for the interest of the author to fade and for its publication to be seen as an increasingly arduous task.

Having reviewed numerous articles for several journals over the years, I have found that the ideal manuscript preferred by editors offers some novel finding or technique, something original accompanied by a well-founded methodology, with a thought-provoking discussion and clear conclusions or take-away message. Manuscripts that provide nothing new, contain lots of superfluous page-filling information, are boring or are poorly written grammatically are strong candidates for rejection. The Spanish saying "What's good, if brief, is twice as good" applies perfectly to this concept. As an example, perhaps the most cited and widely read paper of the 20th century in the field of medicine/biology was published in Nature in 1953 by Francis Crick and James Watson. About the discovery of the double helix structure of DNA, the paper is just ONE page long![1]

4. Don't be stymied by the fear of rejection. Once you have submitted a paper, the editor of the journal will write back in 1-3 months with three possible decisions: accepted, revise, or rejected. It is highly uncommon for a paper to be accepted on the first submission, typically only occurring in low-quality journals with a minimal impact factor. Normally, the manuscript is either rejected or sent back to the author(s) for minor or major revision with suggestions made by the reviewers. A decision of minor or major revision is a good sign, since normally it means that if you work more on the manuscript and successfully answer all the comments made by the reviewers, there is a good chance the paper will be accepted in the second or third round. Criticisms by the reviewers should be taken positively as edits they suggest often will improve the article and help you learn for future publications.

A rejection does not necessarily mean the end of the article. Around half of rejected manuscripts end up being

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published in another journal. All researchers, no matter how famous they are, have occasionally had their manuscripts rejected. At least 35 landmark articles of Nobel Prize winners were initially rejected.[2] For example, Kary Mullis, the inventor of the PCR method, had his paper rejected by both *Science* and *Nature*, and Barry Marshall and Robin Warren, the discoverers of *H. pylori* as the etiological agent of gastrointestinal ulcers, had a hard time getting their paper published, which was also rejected at the first attempt. So, if this can happen to subsequent Nobel Prize winners, do not allow the rejection of an article you have penned to affect your self-esteem. Simply try another journal.

5. Apply for an ISHRS research grant. As current chair of the ISHRS's Scientific Research, Grants, & Awards Committee, I would like to remind you that the ISHRS allocates around $20,000(USD) per year to fund clinical research projects presented by its members. The grant, which is $2,000-$4,000(USD) per project, may not cover the entire undertaking, but it is a good start. The application form can be found on our website (https://ishrs.org/physicians/research/), and any member can submit a request. The committee will review the proposed project, send suggestions to improve it, and then make a final decision according to its scientific merit.

The key to getting your work published is to plan and perform research and then write up and submit your findings in a timely manner. You can increase your chances of getting published when you read extensively to develop a scientific mind, follow tips for writing a good manuscript, overcome the fear of rejection, and take the advice of editors who are experts in the field. It is thought-provoking, published research that moves the field of hair restoration forward, so be sure to apply for an ISHRS research grant to help fund your next project.

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2. Ortiz-Hidalgo C. Articles rejected by journals that later received the Nobel Prize. P*atología Rev Latinoam*. 2023;61:1-13. ■

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achievable outcomes, and standardize medical communication on the subject. Several morphological classifications have been established in clinical practice across various specialties, such as the Fitzpatrick, Tanner, and Capurro Scales.[12-14] In the field of hair restoration, decades-old scales, such as the Norwood-Hamilton and the Ludwig scales, remain widely used in clinical practice to this day.[15-17] Anatomic distribution patterns of pubic and thoracic hair have also been outlined.[18-20] All these classifications are easily applicable in clinical practice as they consider morphological criteria easily defined to categorize populations into different groups, based primarily on characteristics discernible through simple visual inspection.

Anatomic divisions of the beard have been described for the purpose of surgical reconstruction,[21] as well as important anatomical lines and points for proper beard design on the face.[22] However, to the authors' knowledge, there is currently no universal classification for the presence of beard hair in adult men. Thus, we describe a progressive morphological classification for evaluating beard hair presentation patterns in men.

MATERIALS & METHODS

We assessed a sample of 250 males who were seen at the Speranzini Clinic over a period of three years; this consisted of 223 patients seeking hair transplantation (89.2%), 19 patients seeking beard transplantation (7.6%), and 8 patients seeking both treatments (3.2%). The mean age was 41 (range 21-66 years old), with most patients between the ages of 40-49 years (35.6%) and 30-39 years (33.2%). Patients who had completely shaved their beards at the time of consultation, those who had undergone laser hair removal on the face, individuals with cicatricial alopecia, and those with sequelae of traumas or previous surgeries in the facial region were excluded from this study.

Following a thorough physical examination, photographs were taken of the anterior-posterior, right lateral, and left lateral views, and these pictures were used to evaluate, identify, and classify facial hair growth patterns. The frequency of occurrence of different patterns was recorded, and the types found were objectively described considering morphological characteristics that are easily appreciated.

The classification was progressive, so that each described type has more hair and greater coverage than the previous category. The following are descriptions of the types of beard hair presentation that we found:

Type I: *Practically hairless.* There are a few hairs in small quantities, mainly in the central region of the face, mustache, and chin. Typically, there is no goatee fully formed, but some patients may exhibit few hairs between these regions. Some anatomical regions of the beard do not present any hair at all.

Type II: *Presence of hair in the central region of the face (mustache and chin), but other topographical regions of the beard are already easily identified, albeit with low density, isolated, and with little to no connection.* The mustache is thin and is divided into two parts with few hairs in the middle region. Typically, there is no goatee fully formed, but some patients may exhibit few hairs between the mustache and chin.

Type III: *Presence of hair in all anatomical regions of the beard, with low to medium density.* The mustache is thin and is divided into two parts with few hairs in the middle region. Typically, there is no goatee fully formed, but some patients may exhibit few hairs between the mustache and chin.

Type IV: *Presence of hair in all anatomical regions of the beard; however, at least one anatomical region exhibits much lower density than the others, generally the sideburn or the chin region.* Typically, the goatee is fully formed, but some patients may still exhibit separation of chin and mustache.

Type V: *Presence of hair in all anatomical regions of the beard, with medium to high density.* The mustache is generally not contiguous with the maxillary region, leaving an area of recess without hair between these two regions. In the infra-labial region, there is still a persistently low-density area laterally, between the lip and the chin region.

Type VI: *Presence of hair in all anatomical regions of the beard, with medium to high density.* Some beard hairs extend almost to the zygomatic region, and the mustache does not show disconnection with the maxillary region. In some patients, there may still be a persistently low-density area laterally, between the lip and the chin region.

Tables 1 and 2 show the prevalence of the various types in the studied population. Table 3 summarizes the characteristics by beard type, detailing the presence of hair in each anatomical region. In Figures 1 to 7, we present photographs and schematic drawings illustrating the various beard types.

TABLE 1. Beard Types in the Studied Group

Type	%	n
I	**1.2%**	**3**
II	**4.0%**	**10**
III	**11.6%**	**29**
IV	**28.0%**	**70**
V	**42.4%**	**106**
VI	**12.8%**	**32**

TABLE 2. Beard Type Distribution by Age Group

Beard Type	20-29 years	30-39 years	40-49 years	50-59 years	60-69 years	Total
I	1	0	1	1	0	**3**
%	3.8%	0%	1.1%	2.4%	0%	**1.2%**
II	2	5	2	1	0	**10**
%	7.7%	6.0%	2.2%	2.4%	0%	**4.0%**
III	7	11	10	1	0	**29**
%	26.9%	13.3%	11.2%	2.4%	0%	**11.6%**
IV	10	26	22	10	2	**70**
%	38.5%	31.3%	24.7%	23.8%	20.0%	**28.0%**
V	5	26	44	23	8	**106**
%	19.2%	31.3%	49.4%	54.8%	80.0%	**42.4%**
VI	1	15	10	6	0	**32**
%	3.8%	18.1%	11.2%	14.3%	0%	**12.8%**
Total	**26**	**83**	**89**	**42**	**10**	**250**
%	**10.4%**	**33.2%**	**35.6%**	**16.8%**	**4.0%**	**100.0%**

TABLE 3. Comparison of Beard Presentation Type and Its Characteristics

	Facial Hair	Mustache	Chin	Goatee	Sideburn	Mandibular	Maxillary
Type I	+	+	+	-/+	-	-	-
Type II	++	+/++	+/++	-/+	+	+	-
Type III	++	+/++	+/++	-/+	+/++	+/++	+/++
Type IV	+++	+++	+/+++	-/+++	+/+++	+/+++	+/++
Type V	++++	++++	++++	++++	++++	++++	+++/++++
Type VI	++++	++++	++++	++++	++++	++++	++++

FIGURE 1. Beard type I

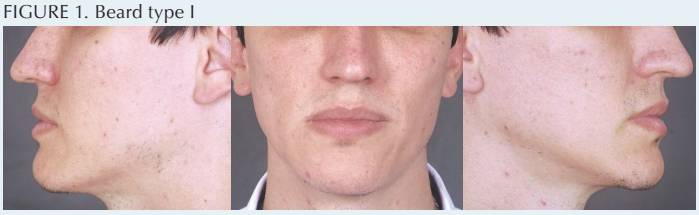


FIGURE 2. Beard type II

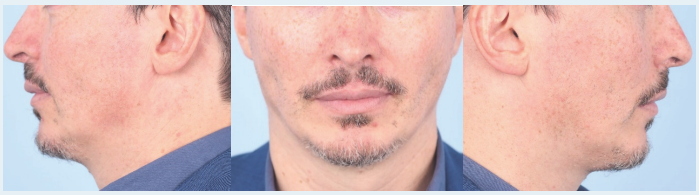


FIGURE 3. Beard type III

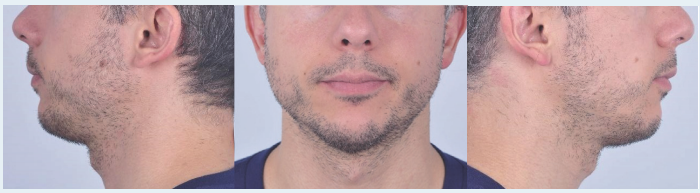


FIGURE 4. Beard type IV

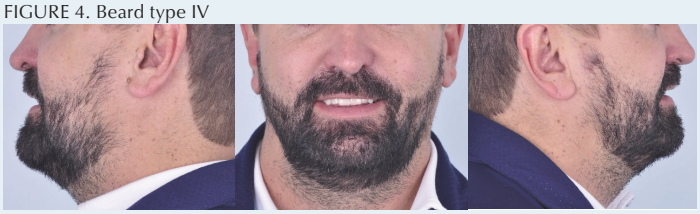


FIGURE 5. Beard type V

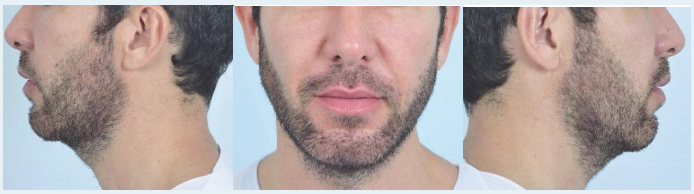


FIGURE 6. Beard type VI

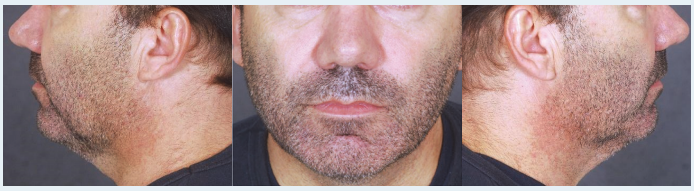
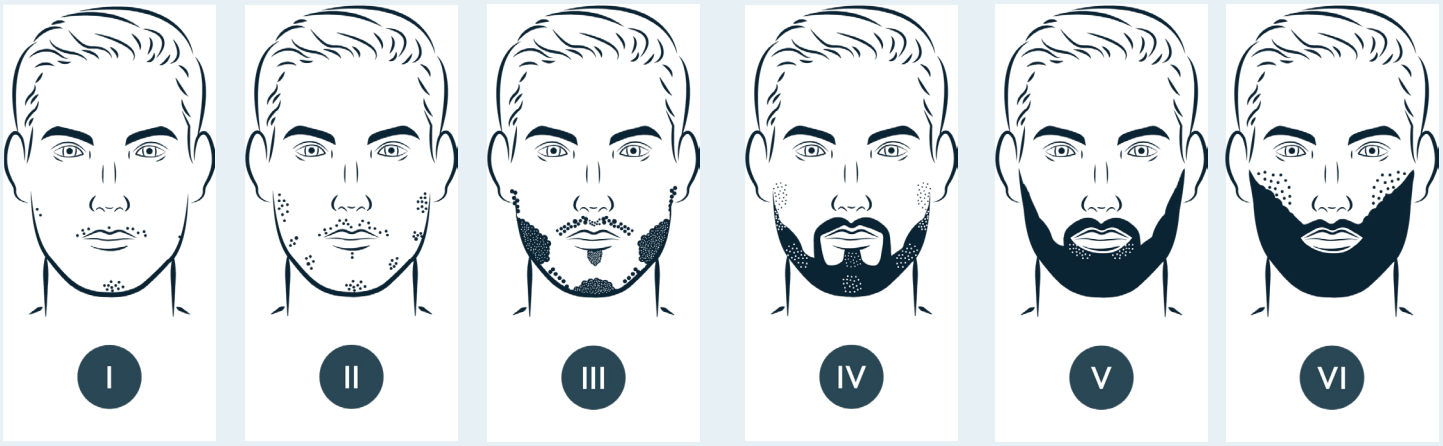


FIGURE 7. Schematic drawings illustrating beard types I-VI.

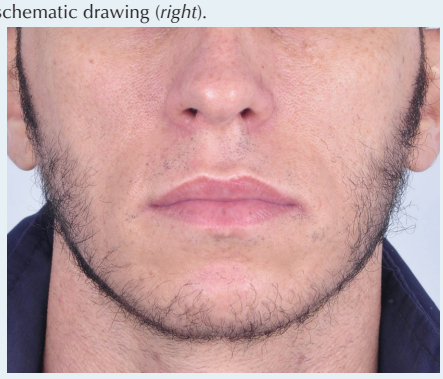


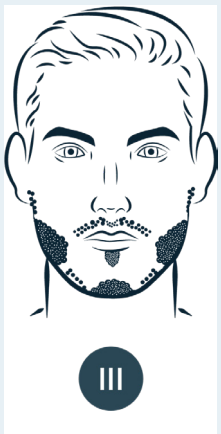
Observations

In our sample, we found a few cases of underdeveloped beards in which the predominance of hair in the peripheral region of the face was greater than in the central region (with an almost absent moustache). We consider this presentation a variation of the norm and classify it as type III with peripheral pattern (Figure 8).

Regarding the distribution of hair in the cervical region, we observed that it follows a pattern of greater coverage in the central compartment, mainly in the suprahyoid region, subsequently progressing to the lateral regions and inferiorly over the thyroid cartilage. In some patients, there is a persistent gap in the submandibular cervical region, leaving the central and lateral regions separated.

FIGURE 8. Type III peripheral pattern facial beard, with low-density hair in all anatomical regions with the mustache and central sublabial region having the lowest density (this mustache has approximately 106 single hair follicular units) (*left*); schematic drawing (*right*).





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DISCUSSION

Brazil has a highly diverse genetic pool (largely Amerindian, African, and European),[23] enabling a wide variety of phenotypic presentations of the beard. Some studies show associations of nucleotide alterations in specific genes linked to the presentation of beard, eyebrow, and hair characteristics in genetically diverse populations (beard-linked gene markers EDAR, LNX1, PREP, FOXP2).[2,24] Building on this, several authors have previously documented beard density in its various anatomical regions, though their studies were conducted on small populations and lacked correlation with the characteristics of beard presentation on the face.[11,16,21,25,26] We identified a gap in standardizing facial hair presentation that should be helpful to compare different ethnic groups as well as to document the frequency of each described type within each of the different population groups and correlate it with density and genetic characteristics.

Our findings are consistent with the observation that men primarily seek substantial coverage in the central region of the face (mustache and goatee) when undergoing beard reconstruction surgery via hair transplant.[27,28] This region is where hair begins to appear during the sexual maturation of boys and is typically the most visible in frontal view. Its absence often draws significant attention, stigmatizing the hairless man, which may lead to psychological trauma by associating him with low sexual development.[8]

A progressive classification can also aid in aligning the expectations of patients seeking hair transplant surgery for beard enhancement, often with unrealistic expectations of achieving a complete and densely populated beard in a single procedure, with minimal use of donor area on the scalp or neck. With this classification, we can predict the follicular unit (FU) requirement for a patient to progress from one grade to another on the scale, and whether this "progression" is achievable through surgery. For instance, a type I patient will not be able to progress to type V or VI, except with the use of an exceptionally large number of FUs from the scalp; thus, it is prudent to conserve donor area and transition to a type III or IV. Illustrative photos can serve as examples for patients of how a less dense beard can still be aesthetically suitable.

The ease of patient classification is also noteworthy. No calculations, devices, or exams are required. Just a quick visual inspection suffices. This classification does not consider the length of beard hair, as it is known that hair length is an important factor in determining hair volume[29] and may give a false impression of hair distribution completeness. Even with a short beard, we can accurately classify the patient's type based on the presence or absence of hair in the topographical regions of the beard. However, in patients with freshly shaved beards, it is not possible to classify.

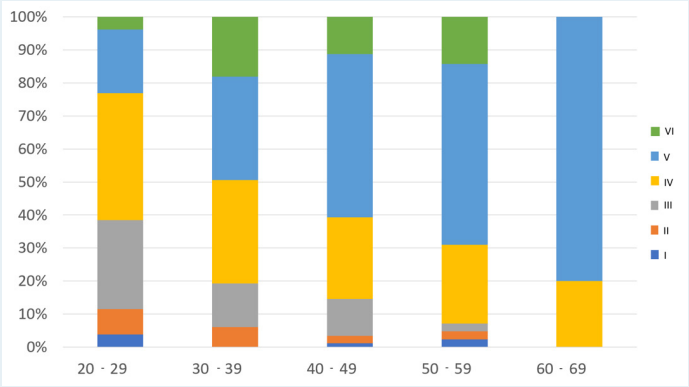
A caveat that needs to be made concerns the sample studied. Our sample included, albeit in a small percentage, patients under 30 years old (10.4%, n = 26), which may lead to an inadequate assessment of the actual development of the beard due to their young age. In practice, we observe that patients with sparse beards seek improvement through hair transplant surgery at a very early age. Within the 20-29 age group, there is proportionally higher demand for beard treatment compared to other age groups (23.1% of patients seek this treatment, compared to the overall average of 7.6%). Generally, there is a decrease in the search for beard treatment as age advances. In the sample, this pattern is only broken in the 60-69 age group (10% seek beard treatment). However, the sample size in this group is smaller, having only 10 patients, which may make the set more susceptible to fluctuations. Table 4 shows the cross-tabulation between age group and treatment with distribution of treatments by age group and percentages in the rows.

TABLE 4. Cross-tabulation between Age Group and Treatment Appointment (Beard Surgery, Hair Surgery, or Both) with Distributions of Treatments by Age Group and Percentages

Age	Beard	Beard and hair	Hair	Total
20-29	6	1	19	**26**
%	23.1%	3.8%	73.1%	**100%**
30-39	8	2	73	**83**
%	9.6%	2.4%	88.0%	**100%**
40-49	3	4	82	**89**
%	3.4%	4.5%	92.1%	**100%**
50-59	1	1	40	**42**
%	2.4%	2.4%	95.2%	**100%**
60-69	1		9	**10**
%	10.0%	0.0%	90.0%	**100%**
Total	**19**	**8**	**223**	**250**
%	**7.6%**	**3.2%**	**89.2%**	**100%**

The prevalence of beard types also varied according to age group. It was observed that patients aged 20-29 have lower frequencies of types V and VI compared to other age groups. On the other hand, they show a higher concentration of types III and IV than the others. Types I and II are less frequent across all age groups. Type V, in particular, shows an increase in frequency as age increases. See Figure 9 for a better visual comparison.

FIGURE 9. Distribution of beard pattern by age group.

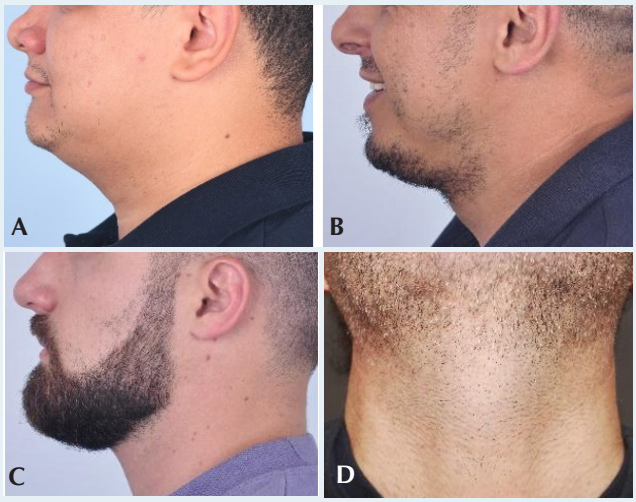


Another limiting factor of the studied population is that patients with an incipient beard and, in contrast, patients with a very full beard, tend to shave their existing beard more frequently, which made analysis difficult and led to the exclusion of some of these patients from the study. Likewise, it would be ideal for all patients to be evaluated with the same facial hair length, but this was not possible to achieve. Some patients also tend to adopt shaving styles that conceal the characteristics of beard presentation, creating hairless areas in the lateral infralabial region, and especially in the maxillary and zygomatic regions, which can hinder analysis (Figure 10).

FIGURE 10. A: The same patient at two different moments: shaved lateral infralabial and maxillary/zygomatic region (*left*) and without shaving region (*right*).

Many differences in hair presentation were also found in the cervical region; however, this description is beyond the scope of this study. Generally, we observed that the central region behaves differently from the lateral region, and the same applied to the suprahyoid and infrahyoid regions: when hair appears in the chin region, it starts to extend into the central cervical region before developing in the lateral regions. In other cases, hair areas appear simultaneously in the central and lateral regions, with a lack of hair between the two areas. Similarly, some patients exhibit high hair density in the suprahyoid cervical region but low density in the infrahyoid region. In some cases, the hair extends through the thyroid cartilage region, meeting the chest hair (Figure 11).

FIGURE 11. *A:* Beard in the central segment of the cervical region; *B:* hair areas appear simultaneously in the central and lateral regions, with a lack of hair between the two; *C:* central region with high density in the cervical suprahyoid region, but low density in the infrahyoid region; *D:* the beard hair extends through the thyroid cartilage region, into the chest hair.

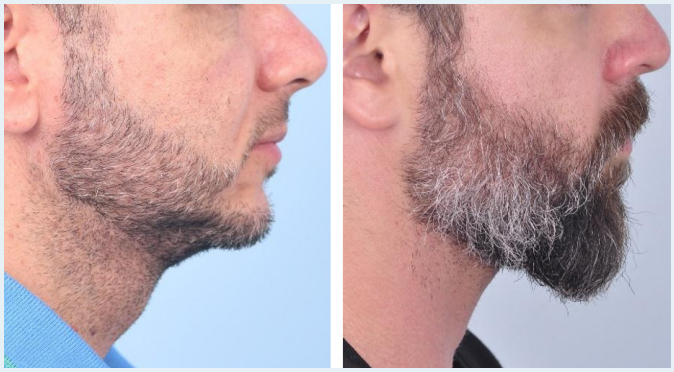


The behavior of the hairs in the cervical region usually follows the progressive increase of facial hair; however, we did not find a precise correlation between the presentation of facial beard and the characteristics of cervical beard in all studied patients: some type III patients may have dense cervical beard, while some type V patients can have sparsely filled cervical beard (Figure 12).

CONCLUSION

We have presented a morphological and progressive classification of men's facial beard that is easily applicable across different population groups. In our sample of 250 males, the most frequent pattern was type V (42.4%, n = 106). Additional studies with larger samples are needed to investigate the statistical difference between each type described in different populations. This classification may facilitate the comparison of beard hair density in different populations with various phenotypic types. Like any morphological classification, there may be some confusion regarding the classification of individuals with borderline characteristics in each group; however, in the studied population, the classification was efficiently applied.

FIGURE 12. Type III with dense and extensive cervical beard (*left*) and type V with poor density on the infrahyoid region (*right*).



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Hypothesis of Hair Loss from Micro Metabolic Dysfunction and Nutritional Management without Finasteride

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Balvant Arora, MD | *Springfield, Virginia, USA*

ABSTRACT

Introduction: Hair loss has polygenic inheritance and is influenced by lifestyle, environmental, nutritional, gut, epigenetic, and stress factors. Metabolic studies have shown that these factors also cause early senescence, micro metabolic dysfunction, and overexpression of the androgen receptor, and trigger androgen mediated pathways leading to androgenetic alopecia (AGA) despite normal androgens.

Material & Methods: We conducted a study on hair loss in men and women, enrolling 50 patients in both the study group and the control group. In the study, we compared the effectiveness of the standard treatments of 5% minoxidil and finasteride 1mg in men, and 5% minoxidil in women, against a combination of minoxidil 5% and a supplement regimen containing antioxidants, curcumin, quercetin, amino acids, iron, calcium, omega 3, vitamins, and minerals. All patients underwent evaluations for serum ferritin, vitamin B12, vitamin D, free testosterone, dihydrotestosterone (DHT), and dehydroepiandrosterone sulfate (DHEAS); trichoscopy and global photography were also performed.

Results: We found serum ferritin was low in 42% of patients, vitamin D was low in 70%, and vitamin B12 was low in 36%. At 4 months, the male and female control groups had an improvement of 7-8% in density and 9-10% in caliber, while the male and female study groups had an improvement of 21-24% in density and 29-32% in caliber.

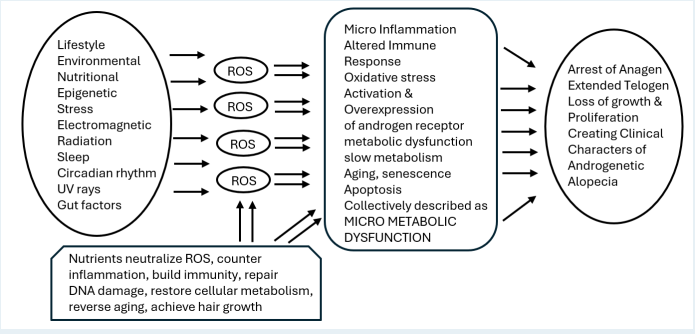
Conclusion: Improvement in hair growth was achieved without finasteride. Antiandrogens cannot address the etiopathology of metabolic dysfunction and senescence. Nutrients can potentially counter reactive oxygen species (ROS), prevent androgen overexpression, repair DNA damage, correct metabolic dysfunction, support active cell division, and achieve hair regrowth.

Keywords: androgen receptor, antioxidants, curcumin, hair loss, lifestyle, metabolic dysfunction, nutrients, quercetin, senescence, stress

INTRODUCTION

The clinical manifestation of androgenetic alopecia (AGA) involves anagen arrest or telogen extension (AATE), which can result from factors causing cellular metabolic dysfunction. The mechanisms causing AATE and AGA are micro-inflammation, altered immunity, DNA damage, oxidative stress, activation and overexpression of the androgen receptor (AR), metabolic slowdown, metabolic dysfunction, and senescence.[1-8] These events being subtle, low grade, insidious, and subclinical, can be collectively referred to as micro metabolic dysfunction (MMD) (Figure 1). The cellular events in MMD are interlinked, with one leading to another, occurring simultaneously, and involving other organ systems, making AGA a risk factor for metabolic syndromes and disorders. Numerous lifestyle, environmental, nutritional, gut, epigenetic, stress (LENGES) and other factors promote MMD and senescence, resulting in AATE and creating monomorphic clinical manifestations of AGA.[9] The gradual onset of MMD and senescence offer an opportunity for repair and reversal of changes with nutritional intervention.

FIGURE 1. Micro metabolic dysfunction—the mechanism of hair loss



MATERIAL & METHODS

The clinical study was comprised of 50 male and 50 female hair loss patients in the study groups (SM and SF) and 50 male and 50 female hair loss patients with similar age and grades of hair loss in the control groups (CM and CF). All patients were evaluated for hair shedding, serum ferritin, vitamin B12, vitamin D, dihydrotestosterone (DHT), dehydroepiandrosterone sulfate (DHEAS), sex hormone binding globulin (SHBG), and free testosterone. All patients had trichoscopy with a folliscope to evaluate the scalp condition, hair density, and hair caliber. Patient photographs were recorded in five standard views: front hairline, right and left temporal corners, mid-scalp, and whorl area. Trichoscopy and photographs were repeated every two months. Groups SM and SF received minoxidil 5% topical application once a day, along with oral supplements of vitamins A, C, D, E, trace elements, calcium, iron, folic acid, vitamin B-complex, biotin, omega 3, and amino acids as per our previous study,[9] but with the addition of quercetin 250mg and curcumin 1500mg. The formulations and dosage of individual nutrients are listed in Table 1. The supplements were administered as synergistic combinations on different days of the week, avoiding inter-nutrient interactions (Table 2) as previously described in our study.[9] Group CM received 5% minoxidil application once a day with finasteride 1mg by mouth once per day while group CF received only 5% minoxidil application once a day. Patients were asked to participate in a self-assessment of global photographs, where they could allocate one point each for the control of hair loss, the appearance of new hair growth along the hairline, changes in temporal angles or parting width, reduction in the size of the bald area, and any noticeable differences reported by friends and family. A score of 0 was allotted for

no change and a negative score for deterioration; a score of 5 was excellent, 4 was good, 3 was average, and 2 or below was poor.

RESULTS

The age group was 21-55 years in men and 18-42 years in women. The average duration of hair loss varied from 2-10 months. Genetic history of hair loss was positive in 32% of men and 21% of women. The potential contributors to hair loss were stress in 56%; restricted eating in 47%; alcohol in 41%; smoking in 32%; sleep disturbances, night shifts, and/or staying awake beyond midnight in 35%; oily scalp and dandruff in 30%; itching in 22%; and trichodynia were reported in 12%. In the men, Norwood-Hamilton grade III hair loss was seen in 34%, grade 4 in 49%, and grade 5 in 17%. In Women, Ludwig grade 1 hair loss was seen in 24%, grade 2 in 66%, and grade 3 in 10%.

Additionally, DHT, DHEAS, SHBG, and free testosterone were within normal limits. Serum ferritin was below the lower limit of the normal range in 30% of the males and 42% of the females. When optimal ferritin of greater than 70ng/mL was considered, then serum ferritin was below the optimal level of 70ng/mL in 48% of males and 63% of females. Additionally, 70% of participants had low vitamin D and 36% had low vitamin B12 (Table 3). Trichoscopy revealed hair shaft thickness heterogeneity, hairless interfollicular spaces, single hair, vellus hair, vellus hair units, empty follicles, and reduction in 2- to 3-hair units. Dandruff, flaking, oily scalp, scaling, peri-pilar halos, yellow spots, redness, and honeycomb pigmentation were observed inconsistently (Table 4). Hair density was counted at the margin of the thinning or bald area along the midline glabellar plane and noted individually for each patient. Hair density in men varied from 58-114 hairs per square centimeter, while hair caliber was 36-78 microns. Hair density in women varied between 62-127 hairs per square centimeter, while hair caliber was between 30-82 microns. Hair loss in men was 42-90 strands per day and 62-114 strands per day in women.

Groups SM and SF reported a reduction in hair shedding by 50% and 40% at 2 months, improving to 80% and 75%, respectively, at 4 months. Groups CM and CF had no relief from hair fall in the first 2 months and a reduction of 20% in males and 15% in females at 4 months. Group SM had a 12% increase in density at 2 months and 21% at 4 months (Figure 2) with an 18% improvement of caliber at 2 months and 29% at 4 months (Figure 3). Group SF showed a 10% improvement in density at 2 months and 24% at 4 months with 21% improvement in hair caliber at 2 months and 32% at 4 months (Figure 4). Groups SM and SF had improvement beginning within 2 months with no nonresponders.

Groups CM and CF had a 3-4% correction in density at 2 months and 7-8% at 4 months, with a 3-4% improvement in caliber at 2 months and 9-10% at 4 months. At 4 months,

TABLE 1. Oral Supplement Formulations Utilized

Antioxidant and Trace Elements	Iron Vit C and B-Complex	Amino Acid
Vitamin A (vitamin A acetate) 3500 IU Vitamin A 28% (as beta carotene 20%) Vitamin C (ascorbic acid) 60mg Vitamin E 50% (acetate 50%) 30 IU Phosphorus (as dicalcium phosphate) 20mg Iodine (potassium iodide) 150mcg Magnesium (magnesium oxide) 50mg Zinc (zinc oxide) 11mg Selenium (sodium selenite) 55mcg Copper (copper oxide) 0.5mg Manganese (manganese sulphate monohydrate) 2.3mg Chromium (chromium picolinate) 45mcg Molybdenum (sodium molybdenum) 45mcg Chloride (potassium chloride) 72mg Potassium (potassium chloride) 80mg Nickel (nickel chelate 1%) 5mcg Tin (tin oxide) 10mcg Silicon (silicon dioxide) 2mg Vanadium (vanadium sulphate) 10mcg Boron (boron chelate) 75mcg	Vitamin C 500mg Vitamin E 50% (acetate 50%) Vitamin B1 (thiamine HCl) 15mg Vitamin B2 (riboflavin) 15mg Vitamin B3 (niacinamide) 20mg Vitamin B6 (pyridoxine HCl) 15mg Folic acid 1700mcg Vitamin B12 (cyanocobalamin) 100mcg Biotin 50mcg Vitamin B5 (D-calcium pantothenate) 15mcg Iron polysaccharide 60mg L-cystine HCl Citrus bioflavonoids Bioperin (black pepper extract) Ascobyl palmitate CO Q10 20%	Serine 15mg Glycine 10mg Threonine 15mg Phenylalanine 15mg Glutamine 60mg Leucine 36mg Valine 18mg Lysine hydrochloride 25mg Aspartic acid 20mg Tyrosine 20mg Isoleucine 18mg Cysteine hydrochloride 5mg Proline 50mg Histidine hydrochloride 13mg Manganese amino acid chelate 15mg Copper gluconate 1.8mg Selenomethionine 187.5mg Zinc amino acid chelate 25mg Magnesium oxide 30mg Folic acid 500mcg
Calcium Quercetin Bioflavonoids	**Curcumin Ginger Pepper**	**Omega 3 EPA DHA**
Vitamin C (calcium ascorbate) 38.9mg Calcium (calcium carbonate DC 90%) 77mg Quercetin 250mg Bromelain 10mg Citrus bioflavonoids 10mg Vitamin K1 (1%) 25mcg	Curcuma longa root 1500mg Ginger extract 300mg Curcuminoids 150mg Black pepper 15mg	Fish oil 1000mg EPA 180mg DHA 120mg

TABLE 2. The 3-Day Repeating Nutrient Administration Cycle

Day	Nutritional supplements
Day 1: Monday repeating Thursday	Vitamins A, C, and E,; trace elements,; Ccalcium; and quercetin
Day 2: Tuesday repeating Friday	Iron polysaccharide, folic acid, vitamin B-complex, biotin, and omega 3
Day 3: Wednesday repeating Saturday	Amino acids, and Cucurcumin
Once a week dose on Sunday	50,000 IU vitamin D3

TABLE 3. Laboratory Test Results

	Evaluation	Variation	Deficiency	Normal Value
1	DHT: Male	36-80ng/dl	Normal	30-85ng/dl
	DHT: Female	4-18ng/dl	Normal	4-22ng/dl
2	DHEAS: Male	102-396ng/dl	Normal	95-530ng/dl
3	DHEAS: Female	42-186mg/dl	Normal	32-280ng/dl
4	SHBG: Male	10-22nmol/l	Normal	10-57nmol/l
5	SHBG: Female	20-46nmol/l	Normal	18-144nmol/l
6	Free Testosterone: Male	520-890ng/dl	Normal	300-1,000ng/dl
7	Free Testosterone: Female	35-55ng/dl	Normal	15-70ng/dl
8	Vitamin D3	8-40ng/mL	Low in 70%	20-50ng/mL
9	Serum ferritin: Male	10-120ng/mL	Below 70ng/mL in 48%; Below 12ng/mL in 30%	12-300ng/mL
10	Serum ferritin: Female	9-82 ng/mL	Below 70ng/mL in 63%; Below 12 ng/mL in 42%	12-150ng/mL
11	Vitamin B12	120-640pg/mL	Low in 36%	190-950pg/mL

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TABLE 4. Findings on Trichoscopy

	Percentage Occurrence
Hair shaft thickness heterogeneity	All cases
Single hair, vellus hair	All cases
Vellus hair in units with terminal hair	All cases
Reduction in multifollicular 2- to 3-hair units	86%
Hairless interfollicular spaces	80%
Oily scalp, seborrheic scalp	42%
Dandruff, flaking	34%
Peri pilar halos	31%
Yellow spots	23%
Scalp honeycomb pigmentation	16%
Redness	12%

FIGURE 2. Trichoscopic evaluation before treatment (*left*); trichoscopic improvement after 4 months of nutrients and minoxidil (*right*).

FIGURE 3. Grade V male hair loss over vertex (*left*); hair regrowth in male after 4 months of nutrients and minoxidil (*right*).

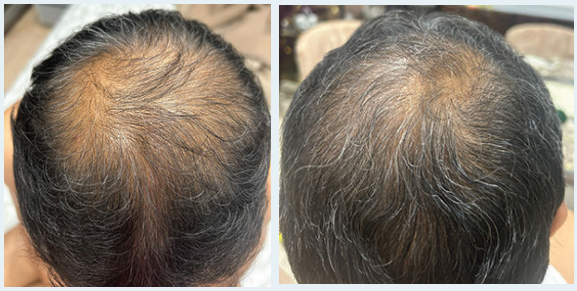


FIGURE 4. Grade II female hair loss (*left*); hair regrowth in female after 4 months of nutrients and minoxidil (*right*).

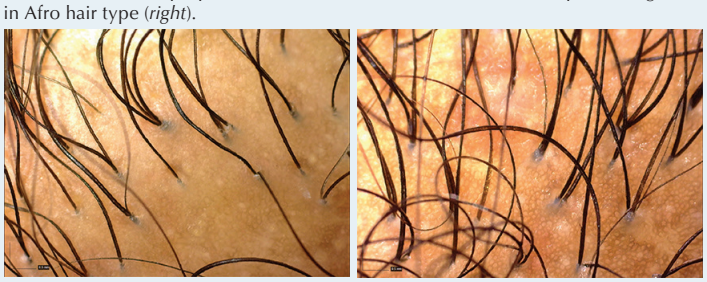
Group CM had 48% nonresponders and Group CF had 53% nonresponders. Continued care over an additional 1 year added an additional 18-30% improvement in the study groups and 6-12% in the control groups.

Photographic Self-Assessment

At 4 months, Groups SM and SF showed excellent photographic improvement in 32% of males and 26% of females, and good improvement in 68% of males and 74% of females. Figure 5 shows the improvement at 4 months in a case of kinky Afro hair that clumps together, creating an appearance of patchy hair thinning; Figure 6 shows the trichoscopic comparison. In the control groups at 4 months, 16% males and 12% females had average results and 51% of males and 58% of females had negative photographic self-assessment scores.

FIGURE 5. Clumping of kinky hair appears as patches of thinning (*left*); hair regrowth in Afro hair after 4 months of nutrients and minoxidil (*right*).

FIGURE 6. Trichoscopic pre-evaluation of Afro hair loss (*left*); trichoscopic hair regrowth in Afro hair type (*right*).



DISCUSSION

The various non-androgenic LENGES factors generate ROS, which are secondary messengers in MMD events. ROS are mediators for the activation and action of transforming growth factor beta (TGF-β), executing the effects of DHT, action of substance P (SP) in stress, and the signaling of cellular pathways, gene expression, DNA repair, apoptosis, and catagen induction.[10-15] ROS induce the secretion of hair growth inhibitors and cytokines promoting premature senescence of the dermal papilla.[3,8] ROS lower the androgen receptor (AR) response threshold, sensitize the AR, promote overexpression of AR, and activate androgen-dependent pathways[4-6] culminating into AATE and clinical manifestations of AGA. Sadick et al concluded that varying severity of ROS-mediated dysregulation of cellular signaling and altered physiology comprise the common etiopathology across all hair disorders.[16] The MMD events occur despite normal androgens. Antiandrogens alone being unable to address the deterioration of cellular function deliver inconsistent results.

The AR is a phosphoprotein with three domains that interact with the DNA, cytoplasm, and cell surface.[17] Expression of the AR is therefore influenced by protein synthesis, oxidative stress, metabolic dysregulation, and availability of nutrients for repair of DNA damage, replenishing proteins, enzymes, and cofactors essential for cellular function.[18]

AGA has polygenic inheritance involving a set of genes. Polygenes are allelic, non-epistatic genes, that act together as a group and interact between alleles. Polygenes are prone to influence from LENGES factors, resulting in phenotypes and traits that differ from the genotype that you are born with.[19,20] As noted earlier, genomics and metabolomics have defined

hair loss phenotypes based on oxidative stress, quiescent metabolism, aging, and senescence, which are some of the mechanisms of AGA.[1-8] Additional factors influencing the phenotypes are metabolic changes similar to early aging with slowing down of physiological functions that promote inflammation and alter immune response, termed as inflammaging[13,21] and immunosenescence.[2,22,23] Epigenetics also influence genomic and metabolic regulation.[24,25] The phenotypes are created in part by the mechanisms of MMD, resulting in common clinical manifestations of AATE that characterize AGA.[22] Metabolic imbalance, oxidative stress, aging, and senescence can be improved with nutrients to restore cellular function and growth.[8,9,25,26]

Bahta et al cultured balding and nonbalding dermal papilla cells, demonstrating biomarkers of senescence, oxidative stress, DNA damage, reduced activity of antioxidant enzymes, and metabolic dysfunction in AGA.[5] Price et al recorded that scalp biopsies of senescent alopecia could not be distinguished from miniaturization in AGA.[27] Stress-induced hair loss displays signs of premature senescence of the dermal papilla.[28] These changes in AGA are a reflection of MMD events. Utilizing antioxidants to neutralize ROS and nutrients to restore enzymes and cellular functions can counter premature senescence and help reverse the changes of AGA.[8,9,26-28]

The incidence and grades of hair loss in the present study were similar to the study by Ummiti et al.[29] Genetic history was positive in 29% of men and 18% of women, similar to Wang et al.[30] Lack of genetic history or normal androgens do not rule out AGA. Hair loss was seen to commence with non-androgenic causes. Stress was the most identified potential contributor in 56%. Quist et al detected metabolic quiescence in stress, and Peters et al observed metabolic dysregulation from cytokines in stress-induced hair loss.[31,32] Liu et al demonstrated that stress creates AAET through SP-mediated by ROS.[13,22,33] SP activates mast cells, increases lipid peroxidation, and suppresses natural cellular antioxidants, superoxide dismutase (SOD) and glutathione peroxidase (GSH-Px), leading to dysregulation of the hair cycle, which was successfully restored with the addition of a free radical scavenger.[33] As per the studies of Singh et al and Rajput, nutrients are shown to counter stress, restore cellular function, and achieve hair growth, supporting results in the present study.[34,35] Diet was identified as a potential contributor to hair loss in 42% of men and 52% of women in our study. Guo et al emphasized diet history and correction of deficiencies but warned against hair loss from indiscriminate use of supplements.[36]

Hair loss due to alcohol and smoking were the next most common potential contributing factors in our study in 41% and 32% of patients, respectively. Smoking and alcohol cause accumulation of ROS and nutritional deficiencies. Field et al noticed increased levels of DHEA, DHEAS, cortisol, and androstenedione from smoking and alcohol.[37] Being awake past midnight and sleep disturbances were reported by 35% of the patients in our study. Vgontzas et al explained potential hair loss from lack of sleep through activation of the hypothalamic–pituitary–adrenal axis and suppression of growth hormone.[38] Action of sebaceous glands is influenced by androgen activity leading to oily scalp and dandruff noticed by 30%, itching in 22%, and trichodynia in 12% in our study, which may be suggestive of inflammation or nutritional deficiencies leading to increased androgen activity.[39]

Serum levels of DHT, DHEAS, SHBG, and free testosterone in male and female patients were found to be within normal limits in our study. Knussmann et al studied testosterone in balding men and rejected the premise of raised androgens in hair loss.[40] Zhang et al concluded that free testosterone and DHT levels did not correlate with the incidence or grades of hair loss.[41] AGA is recognized by a defined set of characteristics that may not always be androgen-mediated. AGA has been reported in complete androgen insensitivity syndrome.[42] The etiology of hair loss is not solely governed by raised androgens but by the altered sensitivity, inefficient metabolism, and overexpression of AR and androgen pathways. The predisposition can be genetic, acquired through MMD, or a combination of both. Cellular function, physiology, and metabolism can potentially be improved with nutrition to help achieve hair growth, as observed in the present study.

Vitamin D deficiency was noted in 70% of study participants. Vitamin D has a direct hair-growth induction effect on the dermal papilla.[43] Vitamin D is anti-inflammatory, an immunomodulator, and is essential for the growth, differentiation, and regulation of follicular signaling pathways. Our study cannot prove causation, but the known role of Vitamin D in hair growth supports the idea that low vitamin D may have potentially contributed to hair loss in these patients.

Rushton emphasized the need to maintain ferritin above 70ng/L in individuals with hair loss and showed a benefit of combined l-lysine with iron in hair growth, warning that excessive iron may turn proinflammatory through the Fenton reaction.[44,45] We detected suboptimal iron levels in 48% of males and 63% of females. Amino acids were included in our supplements to assist in better transport and intracellular utilization of iron.[44] Low levels of vitamin B12 were detected in 36% of patients. Vitamin B12 is essential in the synthesis of DNA, RNA, proteins, and erythropoiesis. Folate and vitamin B12 prevent megaloblastic anemia. Folic acid and B12 supplements thus may contribute to better hair growth.[46]

Nicholas et al reported 40% with moderate and 10% with excellent improvement in hair loss, assessed by global photography, in a study of a nutritional supplement for hair loss.[47] Our results noted above showed higher response rates which we hypothesize was due to the combined use of nutrients.

Hair shaft thickness heterogeneity, as defined by Hu et al,[48] was a common trichoscopic finding in all cases (Figures 2 and 6), along with vellus hair, single hair, and vellus units (Table 4). Scalp honeycomb pigmentation representing the melanin rete ridges was common in men and women across all grades. Hu et al reported yellow spots in early as well as higher grades of male and female AGA.[48] Many of these trichoscopic findings were not consistent among all patients but together could assist in making the diagnosis and offered a progressive comparison of the hair and scalp status over time.

Minoxidil extends the growth phase but is not known to act upon the pre-emergence factors that influence the generation of a healthy hair. Minoxidil response requires 3-6 months and there can be up to 40% non-responders. Minoxidil efficiency reduces from 77% to 55% in micro inflammation.[49] The female

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control group using minoxidil monotherapy had 70% non-responders at 2 months, which reduced to 43% at 4 months. The study groups receiving minoxidil 5% plus the nutritional supplement had higher response rates and no non-responders. Minoxidil stimulates the resting follicles while nutrients ensure cellular function for cell division and biological growth

Finasteride or other anti-androgens do not deliver results in everyone, and these authors hypothesize that anti-androgens need to be supported by a functional cell system to create healthy growing hair and more consistent results, especially among non-responders. Nutrients are required for homeostasis, maintaining redox balance, neutralizing free radicals, enzymatic action, correction of MMD, and maintaining 90% of hair in anagen.[14,15] Low activity of natural cellular antioxidants, superoxide dismutase, and thiol have been reported in AGA.[3,15,50] Several micronutrients play a potential role in the pathogenesis of hair loss.[17] Nutritional deficiencies of iron, zinc, copper, manganese, vitamin D, and anthropometric measurements have been correlated with AGA.[51,52] Our study found no non-responders in the SM group and 48% of the CM group to be non-responders at 4 months.

In a double-blind, placebo-controlled trial of a nutritional supplement containing marine complex, Ablon et al achieved 39% control of shedding and a 24% improvement in density in 3 months, which is similar to our observations.[53] In an evaluator-blinded nutritional study, Nicholas et al reported a 5.9% improvement of vellus to terminal hair at 6 months.[47] The improvement rate reported in this study was higher, and although the rates and efficacy cannot be directly compared between the two studies, we hypothesize the high rates in our study are due to the synergistic use of supplements[9,35] and the addition of quercetin and curcumin. Quercetin is a natural flavonoid with antioxidant and anti-inflammatory properties that acts as a free radical scavenger, reduces oxidative stress and prevents and repairs cellular damage. It has been shown to regulate glucose metabolism, reduce blood pressure and cholesterol, and improve the absorption and metabolism of calcium and vitamin D.[54,55] Curcumin is a natural antioxidant and anti-inflammatory agent that has been shown to counter TGF-β signaling, reduce oxidative stress, improve glycemic control and lipid profile, act as an immune modulator, downregulate proinflammatory cytokines, and prevent and reverse metabolic syndrome.[56,57] Several trials have reported benefits from using vitamin A, C, E, B-complex, vitamin D, biotin, iron, calcium, magnesium, zinc, trace elements, omega 3, amino acids, phytonutrients nutrients, and flavonoids in hair loss and AGA.[57-59]

Further research is required to understand metabolic influence, androgen expression, and the role of nutrients in hair loss. Additionally, our study was at a single center, and further larger studies across various populations are still needed. Another limitation of our study was a relatively short follow-up time especially as medical therapies often take up to 6 months to show results. Our study also looked at response rates among the two groups but did not perform statistical analyses to determine if these differences were statistically significant. Future studies with statistical analyses and longer follow-up times are still needed to further investigate the safety and efficacy of nutritional supplements. Future studies are also needed to help determine the ideal ingredients and dosing of nutritional supplements for hair loss and then to compare these optimized supplements to standard hair loss treatments, including minoxidil and finasteride.

CONCLUSION

Hair loss has polygenic inheritance and is influenced by stress and lifestyle, environmental, nutritional, and epigenetic factors. These factors also cause early senescence and micro metabolic dysfunction, which sensitizes the androgen receptor and activates androgen-mediated pathways leading to the clinical presentation of androgenetic alopecia despite normal androgens. Antiandrogens have inconsistent outcomes as they cannot reverse metabolic dysfunction. It is known that nutrients are necessary for repair of DNA damage, correction of metabolic dysfunction, and support of active cell division. Our study supports the idea that nutritional supplementation in combination with topical minoxidil may also help achieve hair regrowth.

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Literature Review

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Eyebrow Restoration, from Medical to Surgical

In our last issue, I reviewed some very interesting articles regarding eyebrow transplantation. Here, I expand on that topic and review recent articles that surgeons doing this procedure will find relevant.

Chen L, Li Z, Liu X, et al. Clinic analysis and effective improvement tips for poor eyebrow transplantation. *Aesthetic Plast Surg*. 2024 Aug 1. doi: 10.1007/s00266-024-04289-3. Epub ahead of print.

In this article, the authors review a total of 100 cases of patients dissatisfied with the result of eyebrow transplantation. The main causes of unsatisfactory results were sparse growth, inhomogeneous density, and disordered growth direction. The article elaborates on possible causes of poor growth paying special attention to how to best approach grafting in scarring tissue. They finish by highlighting the importance of understanding naturally beautiful eyebrows.

Visentainer L, Machado Carlesso T. Manual Prático de Transplante de Sobreancelhas. Rio de Janeiro: Dilivros Editora, 2024.

I had the chance to buy this book at the past 9th Congress of the Brazilian Association of Hair Restoration Surgery (ABCRC) that took place in Campinas, Brazil. Besides several Brazilian surgeons, the authors feature book chapters from renowned colleagues such as Drs. Antonella Tosti, Roberto Trivellini, and René Rodríguez. This practical manual includes chapters on eyebrow anatomy, the different kinds of alopecias that affect them, eyebrow design, anesthesia, harvesting, placing, and complications. Short and concise, an English version would be a great contribution to our colleagues around the world.

Pirmez R, Spagnol Abraham L. Eyebrow regrowth in patients with frontal fibrosing alopecia treated with low-dose oral minoxidil. *Skin Appendage Disord*. 2021 Feb;7(2):112-114. doi: 10.1159/000511744.

When it comes to eyebrow restoration, surgery may not always be the only option. In this article, Brazil's Dr. Rodrigo Pirmez shares a case series of 7 patients with diagnosed frontal fibrosing alopecia who demonstrated eyebrow regrowth with low-dose oral minoxidil. All patients had less than 50% of eyebrow loss and were started on an initial dose of oral minoxidil ranging from 0.25 to 1.25mg, which was increased to 1.25-2.5mg after 3 months. Of the 7 patients, 5 presented with moderate regrowth and 2 with total regrowth. Oral minoxidil is an important tool that may help reduce the number of grafts needed or may aid in having a more natural result blending preexistent and transplanted hairs.

Anzai A, Pirmez R, Vincenzi C, Fabbrocini G, et al. Trichoscopy findings of frontal fibrosing alopecia on the eyebrows: a study of 151 cases. *J Am Acad Dermatol*. 2021 Nov;85(5):1130-1134. doi: 10.1016/j.jaad.2019.12.023.

When approaching a patient with any kind of hair loss, trichoscopic examination is mandatory. In this article, the authors describe the trichoscopic findings on a rather large case series of patients with frontal fibrosing alopecia. Most commonly, yellow dots, multiple pinpoint dots, and short thin hairs were found on these patients. Other findings included black dots, dystrophic hairs, and tapering hairs. When it comes to trichoscopy, an image speaks more than a thousand words, so I highly recommend readers to take a close look at this article and its images to better understand what trichoscopioc findings of frontal fibrosing alopecia look like and to keep them in mind during our daily consultations.

Vano-Galvan S, Saceda-Corralo D. Oral dutasteride is a first-line treatment for frontal fibrosing alopecia. *J Eur Acad Dermatol Venereol*. 2024 Aug;38(8):1455-1456. doi: 10.1111/jdv.20174.

While not directly related to eyebrow transplantation, this article by Drs. Sergio Vaño and David Saceda elaborates on the possible mechanism of action that makes oral dutasteride the most effective medication in stabilizing the progressive receding of the hairline as shown by recent systematic review and meta-analysis. One theory proposes that oral dutasteride may have antifibrotic properties facilitating the action of PPAR-gamma that regulates the fibrosis induced by TGF-beta1. Another hypothesis states that dutasteride increases the availability of tissular oestradiol, as higher levels of oestradiol in tissues would avoid the metabolism of xenobiotic oestrogens by the CYP1B1 enzyme. Finally, a possible immunomodulatory effect of dutasteride could inhibit the recruitment and polarization of macrophages, reduce proinflammatory cytokines IL-1beta and IL-6, and inhibit the cellular production of oxidative stress.

COLUMNIST'S COMMENTS

As with other types of hair loss, the surgeon must not only find ways to surgically correct the issue but also to understand how the eyebrows were lost in the first place and to keep in mind that other therapies could be beneficial or even mandatory depending on the situation. This issue of the literature review column includes two articles from Dr. Rodrigo Pirmez from Brazil, who will be joining us on our upcoming 32nd World Congress in Denver, so be sure to join us as I'm sure he will present additional interesting and thought-provoking information at the meeting. ■

Androgenetic Alopecia Is Not Synonymous with Androgenic Alopecia

Victoria Ceh, MPA* | *Chicago, Illinois, USA*

Androgenetic Alopecia (AGA), or male/female pattern hair loss, is a genetically determined disorder driven by increased androgen sensitivity of hair follicles in a specific pattern and other factors. Androgen levels generally are normal or even low.

Androgenic Alopecia refers to hair loss caused by excess androgens, either intrinsic from a tumor or exogenous from supplements.

The terms are often incorrectly used interchangeably. ■

The author acknowledges and thanks Dr. George Cotsarelis for reviewing the article.

Hair's the Question

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

Recently, a task force was asked to help reimagine the ISHRS's Lifetime Achievement Award, and the process got me wondering how these awards came to exist. For instance, who designed the original Golden/Platinum Follicle awards? What is the actual process of awarding this honor to individual ISHRS members? And, have any awards ever been used in hand-to-hand combat?* It turns out that the answers to these questions reveal the fascinating history of the ISHRS itself.

ISHRS Awards: A History of Our Specialty

"Standing on the Shoulders of Giants"**

1. In what year was the ISHRS formed?
   A. 1993, the same year that English mathematician Andrew Wiles proved the last theorem of French mathematician Fermat (after 356 years, the world's most difficult math problem)
   B. 1994, the same year that Darmstadtium, Chemical element 110, was discovered at GSI Helmholtz Centre for Heavy Ion Research near Darmstadt, Germany
   C. 2003, the same year that The Human Genome Project was completed with 99% of the human genome sequenced to an accuracy of 99.99%
   D. 2004, the same year that Luciano Pavarotti performed in his last opera, "Tosca," at New York Metropolitan Opera

2. The ISHRS was formed as a non-profit organization to:
   A. Establish the basic principles of hair transplantation and earn a profit for board members
   B. Honor the individuals who had paved the way for modern hair transplantation
   C. Meet and discuss hair transplantation in exotic locations around the world
   D. Share ideas and encourage innovation to improve patient outcomes

3. In what year was the effort started to create several ISHRS awards to celebrate the contributions of individuals in the areas of scientific research and clinical improvements?
   A. 1993, the same year the ISHRS was formed
   B. 1997, the same year Boerge Ousland of Norway became the first person to cross Antarctica alone and unaided
   C. 2000, the same year that Gisbourne, New Zealand (population 32,754), was the first city in the world to welcome in the new millennium
   D. 2003, the same year that humans received the final communication between Earth and NASA space probe Pioneer 10 (then 7.6 billion miles (12.23 billion kilometers from Earth)

4. Who designed the original Platinum and Golden Follicle awards?
   A. Victoria Ceh, executive director of the ISHRS, who later created the professional management company that currently runs the administration of the ISHRS (and others)
   B. Dr. Norman Orentreich, New York dermatologist and creator of the Clinique skin care product line for Estee Lauder
   C. Dr. Paco Abril, artist and hair surgeon, who also created a tiny pair of golden follicle earrings to match and gifted them to Marcia Kabaker
   D. Peter Canalia, the lawyer who wrote the bylaws for and was the executive director of the American Board of Hair Restoration Surgery

5. Which of the following is true about the ISHRS award given for "lifetime achievement"?
   A. The original award statue was a gift designed by an artist/surgeon that was given to the surgeon's assistant.
   B. The award is not given every year but only when a nominee has demonstrated lifetime achievement in the field of hair restoration surgery.
   C. Dr. Norman Orentreich was the first recipient of the award, and the award was named after a recently deceased hair surgeon.
   D. All of the above

6. Which ISHRS award honors outstanding achievement in basic scientific or clinically related research in hair pathophysiology or anatomy as it relates to hair restoration?
   A. The Lifetime Achievement Award
   B. The Manfred Lucas Award
   C. The Platinum Follicle Award
   D. The Golden Follicle Award

7. Which ISHRS award honors an individual for outstanding and significant clinical contributions related to hair restoration surgery?
   A. The Platinum Follicle Award
   B. The Golden Follicle Award
   C. The Distinguished Assistant Award
   D. The CSI (Cases, Studies, and Innovations) Award

8. Which ISHRS award has only been given for exemplary service and outstanding accomplishments in the field of hair restoration surgery since 2003?
   A. The CSI (Cases, Studies, and Innovations) Award
   B. The Distinguished Assistant Award
   C. The Lifetime Achievement Award
   D. The Manfred Lucas Award

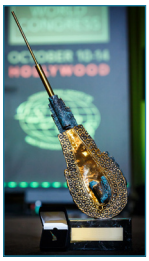
9. Which of the following awards does the ISHRS present to its members?
   A. Founders Award, Leadership Award, Stough Award, Norwood Award, and Advances in Hair Biology Award
   B. Scientific Merit in the Specialty Award, Educational Value Award, Originality Award, Methodology Award, Best Practical Tip Award, and Technical Visual Appeal Award
   C. Best Dressed Award (presented only once), Best Forum Article of the Year (The O'Tar) Award, Inventions and Innovations Awards, Last Man Standing Award (not yet presented)
   D. Follicle, Lifetime Achievement, CSI, Distinguished Assistant, Named Lectureships, and Special Awards

10. Which of the following is the newest award presented by the ISHRS?
   A. The Distinguished Assistant Award
   B. The CSI (Cases, Studies, and Innovations) Award
   C. The Lifetime Achievement Award
   D. The Diamond Follicle Award

11. How can you receive an award from the ISHRS?
   A. Buy it via Amazon/AliBaba mail order
   B. Volunteer on an ISHRS committee
   C. Campaign to get your friends to nominate you
   D. Contribute to the specialty of hair restoration surgery

12. How are the awardees traditionally announced when the Golden Follicle, Platinum Follicle, Lifetime achievement, and Distinguished Surgical Assistant Awards are given?
   A. Secret ballot with all Gala attendees
   B. A "tapping" ceremony where the awardee is softly tapped on the shoulder by a close colleague standing behind them to silently indicate their selection for the award.
   C. Cryptic description speech at Gala with everyone lining up to congratulate, especially previous winners
   D. Big reveal with curtain and balloon drop

Did you know...the ISHRS has many awards to recognize member achievements?



The **Golden Follicle Award** is given for outstanding and significant clinical contributions related to hair restoration surgery.

The **Platinum Follicle Award** is given for outstanding achievement in basic scientific or clinically-related research in hair pathophysiology or anatomy as it relates to hair restoration.

The **Distinguished Assistant Award** is presented to a surgical assistant for exemplary service and outstanding accomplishments in the field of hair restoration surgery.

"**The O'Tar**," is given annually for the best *Hair Transplant Forum International* (a.k.a., the *Forum*) article of the year. The award is dedicated to Dr. O'Tar Norwood (1930–2020), who along with Dr. Dow Stough co-founded the ISHRS in 1993. Dr. Norwood also created and published the first *Hair Transplant Forum International* in 1990.

To see all of the honors we award our membership, go to **https://ishrs.org/awards-lectureships**

*Spoiler Alert: No duels have yet occurred, but the Golden and Platinum Follicle statues always resembled small swords to me. If a fight does break out, my money is on Bill Rassman.
**This phrase was used by Isaac Newton in a 1675 letter where he wrote, "If I have seen further [than others], it is by standing on the shoulders of giants."

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Answers

1. **A.** The ISHRS was formed in 1993 and many of the early surgeons had been transplanting hair and sharing knowledge for decades before that. It is truly a young profession but completely deserving of being listed alongside these other great accomplishments!
2. **D.** The ISHRS is a non-profit organization so NO members gain financial profit from their activities! AND, although we do meet and discuss hair transplantation in wonderful locations around the world, that was not the point at the ISHRS's inception.
3. **B.** The early surgeons in this field recognized that they were "standing on the shoulders of giants." It is good to remember that these awards are not a self-congratulatory pat on the back, but rather they are a recognition that we all stand higher and help patients more because we freely share the accomplishments in our field and celebrate each other's excellent work.
4. **C.** I was privileged to speak with Dr. Sheldon Kabaker, who kept in touch with Dr. Abril. Dr. Abril was interested to know if we still used his Golden and Platinum Follicle design for the awards, and we do! We are the only organization I am aware of that has such a strong tie to its history and institutional memories.
5. **D.** The Manfred Lucas Lifetime Achievement Award, as it was initially known, has only been given out 15 times since 1997 (https://ishrs.org/awards-lectureships/manfred-lucas-award/). It initially honored a surgeon who was a sculptor, artist, and renaissance man when he died at the young age of 59, and it used one of his sculptures because it was gifted to the ISHRS by one of his assistants. The name is now simply the ISHRS Lifetime Achievement Award, and the award itself now reflects the spirit of achievement the ISHRS seeks to honor.
6. **C.** The Platinum Follicle Award honors basic scientific, clinically related research, "or an invention or discovery, or furthering techniques and methods in a profound way that has resulted in the advancement of the field of hair restoration." Interestingly, you do not have to be a member of the ISHRS to receive this award (or the Golden Follicle Award), but unless there are special circumstances, you cannot receive one within 5 years of getting the other award.
7. **B.** Technically, it is awarded for "clinical or educational contributions" to our field. However, the coveted Golden Follicle Award is not only a mark of achievement, but it is also a symbol of the esteem in which your ISHRS colleagues hold you. It is given based on a confidential nominations process, not individual campaigns.
8. **B.** Distinguished Assistants are the lifeblood of our profession. We all know the joy of partnering with someone who makes every surgery flow effortlessly and every patient experience special. Hair is one of the few procedures where "it takes a village to grow a hair." The CSI (Cases, Studies, and Innovations) Award is even newer than that (since 2021). The Lifetime Achievement Award and the Manfred Lucas Award are two names for the same award.
9. **D.** Unfortunately, several of these, including the Inventions and Innovations Awards are my own "invention."
10. **B.** Only given since 2021, the CSI awards are the opportunity to honor young talent as well as a lifetime of professional achievement.
11. **D.** The ISHRS has a "Nominating Committee" that solicits suggestions for worthy individuals from among the general membership. All members in good standing are encouraged to identify a "deserving peer" for one of these prestigious ISHRS awards. Be aware that specific information and accomplishments should be included with the nomination, so be prepared to gush about your professional idols.
12. **C.** Nominations for the awards are a confidential process, and a winner may never know who nominated them. For this reason, there is a "reveal" at the Gala. The president of the society describes the awardee, and by process of elimination, the identity is slowly revealed! ■

SAVE THE DATE! Oct. 23-25, 2025

World Congress 2025 Berlin

Save the date and mark your calendars!
We are pleased to announce the dates and city for the ISHRS 2025 World Congress.

The Notable Articles Project

The *Forum* in Review, 1990–2020: Revisiting the Articles That Helped Shape the Specialty

In this column, an important *Forum* article from the past is republished along with commentary from a respected expert. If you have a suggestion for an article that you'd like to see re-examined here, we invite you to send it along with your commentary to forumeditors@ishrs.org. As a reminder, you can find all previously published articles and all back issues of the *Forum* on ePUB at www.ishrs-htforum.org.

Commentary by Jerry Cooley, MD, FISHRS | *Charlotte, North Carolina, USA*

Many younger hair restoration surgeons may be unaware of the active research and debate about graft survival that occurred in our field about 20 years ago. The late Dr. Jung Chul Kim was one of these researchers, and his work gave us valuable insight into this important topic. Though Dr. Kim's life's work ended all too soon, its significance will endure as a crucial part of his impactful legacy in our field.

One of the most important findings was the potential for hair follicles to regenerate after transection. He found that implantation of follicles with the lower portion missing (no dermal papilla) could regenerate but would produce finer hairs. If a third or less of the upper portion was missing, the follicle usually regenerated and produced a normal caliber hair. Importantly, the ability of a transected follicle to regenerate was usually less than 100% with the obvious conclusion being that minimizing transection was important for optimal growth.

Another important aspect of his work was around holding solutions and the effect of chilling. While he favored chilled saline, it is important to note that he kept his grafts at the air-liquid interface, which most likely prevented excess intracellular water compared to immersion. Work that I had done on the subject found that tissue storage media, such as HypoThermosol® FRS + ATP, resulted in superior survival over long periods compared to chilled saline. Kim also found that dilute hydrogen peroxide, not full strength, was safe to use as a cleansing agent during the procedure. Additionally, he found that implanters reduced trauma during placement and improved survival.

I was keenly interested in this topic and published several papers and studies at that time. What I concluded from my study was that graft survival was dependent on several factors. The most important of these was avoiding graft trauma (e.g., transection, dehydration, crushing during placement). The next most likely culprit was ischemia/ATP depletion, which could be addressed with the use of post-operative liposomal ATP spray (or hyperbaric oxygen). A small but potentially important factor involved the use of specialized holding solutions to prevent storage injury, cold injury, and ischemia-reperfusion injury. Finally, the intra-operative injection of platelet-rich plasma (PRP), ACell, or adipocyte stem cells (e.g., Regenera) was found to contribute to graft survival by promoting angiogenesis and graft repair.

Unfortunately, there has been very little work done on graft survival since that time. It would be good to see the next generation of hair restoration surgeons engage in more research on this important topic.

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2. Cooley JE. Bio-enhanced hair restoration. *Hair Transplant Forum Int'l.* 2014;24(4):121-130. ■

Jung Chul Kim, MD: Improving Survival of Follicular Unit Grafts

James L. Breeling (Summarized from "The Cutting Edge" Session, 11th Annual Scientific Meeting, New York, NY, October 2003)

James L. Breeling, a professional medical writer and editor, is an independent consultant to the ISHRS and assisted the Forum *in covering several keynote talks at the ISHRS Annual Meeting in New York.*

Although the follicular unit (FU) graft marks another important step in the creation of natural-appearing transplanted hair, the technique's long operating time and use of more delicate grafts introduce a number of factors that can affect graft survival and potentially manifest as poor growth. In a presentation titled "Factors Affecting Graft Survival," Jung Chul Kim, MD, told colleagues at the ISHRS 11th Annual Meeting in New York how some of these factors can be addressed. Dr. Kim is in the Department of Dermatology, Kyungpook National University, Daegu, South Korea.

Using techniques he described in his presentation, Dr. Kim reported that he achieves a graft survival rate of 92% and observes no difference in survival rate of one-follicle and two-follicle FUs. No significant difference is observed in hair diameter of donor hairs and regrown hairs in the recipient area.

Dr. Kim described steps taken to improve graft survival during 1) donor harvesting, 2) graft dissection, 3) graft storage, and 4) graft implantation.

Graft Harvesting

Simple elliptical harvesting using a No. 20 blade is preferred to multiblade techniques in the Asian patients treated by Dr. Kim. Because scalp hair follicles of East Asians are longer than those of Caucasians, multiblade techniques increase the risk for follicle transaction during harvesting.

Graft Dissection

A sliding technique using a No. 20 blade is used for graft dissection into one-hair and two-hair FUs. Graft dissection is made more difficult by blood staining of adipose tissue. Transection of FUs can sometimes not be avoided, but the transected grafts are preserved and later are implanted. Upper follicle implants can regenerate thin hairs and lower follicle implants can reconstitute a complete hair follicle.

Graft Storage

Dissected FUs are placed in normal saline chilled to 4°C; preservation at 4°C is superior to preservation at room temperature. Prepared grafts are stored on gauze or Telfa pads in an air-fluid interface rather than in a floating environment. Immersed grafts have been found to absorb excess fluid, causing greater difficulty in placing them into smaller recipient sites.

Graft Implantation

FU grafts were implanted 2.5 hours after donor harvesting in the cases reported here. Time from donor harvesting to implantation should not exceed 6.0 hours. Grafts to be implanted should not be held on the gloved finger of the physician or assistant for longer than 10 minutes in order to avoid drying from exposure to room air and operating room lights.

Use of the KNU implanter has been found to decrease graft handling and eliminate crushing, bending, and squeezing of grafts. Depth and angle of graft insertion are critical to graft survival. Insertion at correct depth decreases risk for folliculitis and epidermal cyst formation. Acute angle of insertion can reduce risk for bleeding and popping.

Grafts are implanted from left to right and from back to front to reduce risk for popping. Implanting from left to right has been found to reduce compression forces on the previously implanted left graft.

The average density of FU implantation is 18 FU/cm^2 for both one-hair and two-hair follicle grafts. Dense packing of >40 FU/cm^2 has been found to result in poorer growth. Placement of 30 to 30 FU/cm^2 with a 19-gauge needle has been found to be safe.

Normal saline or 1.5% hydrogen peroxide is used for scalp cleansing and removal of blood during and after surgery. The standard 3% solution of hydrogen peroxide has been found to adversely affect hair growth.

Survival rate of grafts after FU transplantation is evaluated using a tattoo in both temporal recession areas. ✧

Message from the ISHRS 2024 World Congress Program Chair

Henrique N. Radwanski, MD | *Rio de Janeiro, Brazil* | hnradwanski@hotmail.com

I could not be happier or more excited with the scientific program created for the 32nd ISHRS World Congress in Denver. As program chair, I'm enthusiastic and at the same time humbled by the opportunity to showcase the best that the ISHRS has to offer to its members. In a nutshell: attendees will have a unique and very broad learning experience, interacting with and listening to colleagues from all over the world. The younger generation has been called on to share their experience, and I'm sure we will be astounded with the novelties, tips, tricks, and innovations that these creative minds will share with us. Our steadfast elders will also contribute with moderations and panels, and—in the space of five days—we will pay homage to three decades of the ISHRS.

A DAILY VIEW OF THE 2024 WORLD CONGRESS

The program will be a *tour de force*, and here's a summary. On Tuesday, October 15, the Live Surgery Workshop will present all aspects of hair restoration. Drs. Jim Harris and Sara Wasserbauer, chair and co-chair, respectively, will bring top-notch surgeons together with an assortment of machines and instruments to cover current state-of-the-art tools and techniques. On Wednesday, October 16, we will have the Basics Course under the direction of Drs. Nina Otberg and Francisco Le Voci, and the Advanced/Board Review Course under the direction of Drs. Vikram Jayaprakash and Hanieh Erdmann. In the afternoon, the ISHRS is offering a free half-day course that will offer attendees an exceptional opportunity to learn how to approach Afro hair transplantation, everything from the fundamentals to comparing different punches and equipments. Directors Drs. Luis Nader and Marta Zollinger have invited a selection of renowned colleagues to demonstrate the pearls and pitfalls of the curly hair.

The congress will begin on Thursday, October 17, with ISHRS President Dr. Brad Wolf opening the General Session. This year's Founders Lecture will be in honor of the late Dr. Sheldon Kabaker, with a tribute given by Dr. Jeffrey Epstein. Dr. Rodrigo Pirmez will deliver the Founders Lecture on the clinical treatment of androgenetic alopecia. The program proceeds with sessions on artistry, surgical challenges, and novelties. Befittingly, we will hear Dr. Pankaj Karande speak on incorporation of hair follicles in tissue engineering.

On Friday, October 18, we begin with a session called Looking Ahead. Dr. Albert Carlotti will tell us how artificial intelligence, or AI for short, can enhance our practice. Next, hold on to your seats! An array of speakers will talk about robots, machine learning, simulation tools, and novel biomarkers. The following session will address more advances in diagnostics and therapeutics and will lead us to the panel, "Where do Innovations Take Us," which will be moderated by Dr. Bob Haber.

The remainder of the afternoon is dedicated to two sets of Focused Sessions, chaired by Dr. Maxim Chumak. According to Dr. Chumak, "Focused sessions offer a valuable opportunity for audiences of all levels. This year each topic will be presented by true experts in their fields, with sufficient time allocated for discussions at the end of each session." The day will close with the very important M&M Session, chaired by Drs. Shady El-Maghraby and Daniel Lee.

The last day of the congress, Saturday, October 18, kicks off with a session on the psychology of hair restoration. Once several abstracts on this issue have been presented, featured speaker Dr. Kristina Gorbatenko-Roth will present "Psychological Effects of Hair." Dr. Nilofer Farjo will then coordinate a panel to further discuss this fascinating subject.

Two more sessions will address a range of topics, spanning from transection and survival rate of hair follicles to recipient area necrosis, hairline in Afro patients, and many more. Quantitative imaging driven by AI will be presented by Douglas Canfield. In between, we will have the Live Patient Viewing, a truly unique experience that has always amazed me over the 21 years I've been a member of the ISHRS. Chairs of this event, Drs. Sam Lam and Sanusi Umar, are actively contacting members of the ISHRS to showcase their patients, which will bring together a collection of different indications and results from hair restoration to the scalp and other body areas.

The surgical assistants will also have a plethora of learning opportunities at this meeting. With Chair Kathryn Morgan at the helm of the Surgical Assistants/Non-Physician Program, the ISHRS will offer three days of lectures on a variety topics that are relevant to their work. We are excited to offer this comprehensive program to our dedicated staff.

It is never too much to celebrate: this year the posters will be back! Dr. Greg Williams, CSI chair, says: "This year I am delighted that we are returning to hard copy posters so attendees can wander around and look at the CSIs with colleagues, which stimulates discussion. This was always one of my favourite aspects of ISHRS World Congresses in the past. Digital versions of the CSI posters will also be featured on the Congress App, so you can view them at your leisure during or after the congress."

Collegiality will be fostered in informal, early-morning meetings aptly named "Coffee with the Talking Heads"; some 25 tables will each be devoted to pertinent issues and conversations that attendees will be stimulated to contribute to.

WITH HUMBLE APPRECIATION

As I close my last column, I would like to thank everyone who has contributed to the program, beginning with the World Congress and CME Committees, who trusted in my judgment to curate abstracts and speakers. The directors of each session deserve a round of applause, as do our keynote speakers. Lastly, a big thank-you to Team Denver: Dr. Brad Wolf, Victoria Ceh, and Melanie Stancampiano! ■

ABHRS President's Corner

Steven Gabel, MD, FISHRS | *Tigard, Oregon, USA* | drgabel@gabelcenter.com

A Close Look at the Oral Examination and Our New ABHRS Awareness Webinar

The American/International Board of Hair Restoration Surgery (ABHRS/IBHRS) has had a busy year with our outreach program and conducting examinations of prospective diplomates. An oral examination was given in Milan, Italy, on May 23, 2024. We had over a dozen physicians taking the examination on their way to becoming diplomates of the ABHRS. I want to thank the Oral Exam Committee members who gave their time to administer a successful examination, and a special thank-you to Emily Valerius, ABHRS Executive Director, who kept it all perfectly organized.

On August 10, 2024, the written examination was given electronically to 22 candidates at testing centers throughout the world. This has enabled qualified physicians to take the examination closer to their home state, which is much more convenient for the candidates. Our next oral examination will be held on October 14, 2024, in Denver, Colorado, in conjunction with the 32nd World Congress of the ISHRS.

2024 Milan Oral Examiners Top row (*L to R*): Drs. Georgios Zontos, Christopher D'Souza, Daniel Lee, Timothy Carman, Luciano Sciacca, Steven Gabel, Haitham Abdelhamid

Bottom row (*L to R*): Dr. Randa Erfan, Executive Director Emily Valerius, Dr. Luciana Takata

The Oral Exam Committee, chaired by Dr. Christopher D'Souza, is tasked with developing new protocols. Each year, cases are selected based on their merit and difficulty. The protocols are designed to test a candidate's methodology, clinical reasoning, treatment planning, management of complications, and knowledge of all aspects of hair restoration. It is also designed to test our candidates on the safe and ethical practice of hair restoration.

Once a suitable case has been identified, the protocol development begins—a complicated and arduous task that requires many hours. Each member of the committee must develop realistic presentations that examine the candidate's knowledge and clinical acumen. Each protocol is backed up by current and relevant medical literature. Although each examiner may have a bias on how they would treat the patient, for testing purposes, all the examiners are expected to adhere to a standardized approach by asking the same questions and scoring it the same way to ensure fairness for all the candidates. Additionally, the treatments rendered are based on current evidence-based medicine. Once written, the entire Oral Exam Committee scrutinizes every word of the protocols. The process up to this point takes weeks if not months to prepare. The development does not stop there: prior to administering the examination, all the examiners will have one final pass at editing the protocols, and when there is agreement on all the scenarios and questions, the protocol is finalized. Michael Brady, ABHRS legal counsel, is present during the oral exam to ensure that the examination process adheres to all legal standards and maintains the integrity and fairness expected by all participants. After the exam is given, the examiners will meet for a debrief in which the protocols are again analyzed. The Oral Exam Committee takes all the candidate's responses and the examiner's feedback and scores the examination.

IMPORTANT DATES

September 28, 2024: ABHRS Awareness Webinar
October 14, 2024: Oral Examination
August 2025: Written Examination
https://abhrs.org/certification/certification-exam-dates/

The Oral Exam Committee has the enormous responsibility of developing, administering, and scoring the protocols, and I want to thank Dr. Christopher D'Souza for his leadership and members Drs. David Lee, David Josephitis, Waris Anwar, and Fanfan Chen for their time and dedication.

As the ABHRS/IBHRS is the only recognized certification for hair restoration throughout the world, the organization excels in spreading the word about the merits of being a diplomate. We have a robust social media committee that regularly posts our messages on Facebook, Instagram, and LinkedIn. Nonetheless, each year we have physicians who approach us to ask what it means to be a diplomate of the ABHRS/IBHRS and how to become a diplomate. In response to this ongoing interest, I am proud to announce that the ABHRS has put together an Awareness Webinar that will be held on September 28, 2024, from 8:00AM–9:50AM (US Central Time), to discuss the ABHRS in detail. Drs. Rana Iran, ABHRS Vice President, and Ratchathorn Pachaprateep, ABHRS Board member, have assembled an amazing program that will discuss all areas of the ABHRS including the benefits of being a diplomate, the application process, the credentialing process, and strategies for taking the examination. For anyone interested in becoming a diplomate of the ABHRS/IBHRS, please attend this comprehensive webinar. Information on the program will be posted on the website soon (www.abhrs.org).

At the upcoming meeting in Denver, please visit the ABHRS booth in the exhibit hall and meet our Executive Director, Emily Valerius, and the ABHRS team. They are available to answer any questions you have. For our current diplomates, stop by and say hello. They will be happy to discuss any issues you may have, areas that you feel need to be addressed to enhance the organization, and opportunities to get more involved.

This year's meeting will be highly attended, and I personally am looking forward to seeing everyone soon in Denver. ■

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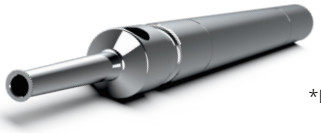

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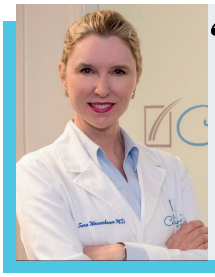

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Dr. Sara Wasserbauer,
California Hair Surgeon, USA

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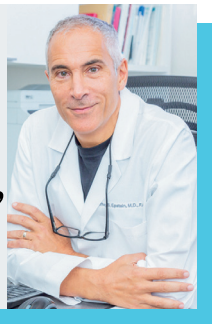
Dr. Jeffrey Epstein,
Foundation for Hair Restoration, USA



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Meeting Review

Review of the 15th Annual Hair Transplant 360 Workshop: Comprehensive Hair Transplant Course & LSE/FUE Hands-On Course

July 19-20, 2024 | St. Louis, Missouri, USA

Parsa Mohebi, MD, FISHRS | *Woodland Hills, California, USA*

The 15th Annual Hair Transplant 360 Workshop was this past July. This highly sought-after event is one of the most comprehensive hair transplant workshops offered, attracting new hair transplant surgeons and those looking to start a career in hair restoration.

This year's course directors, Drs. Samuel Lam and Steven Gabel, and assistant course director, Aileen Ullrich, assembled an exceptional faculty to lead the course. They were deeply involved in the hands-on portion, providing a solid foundation for the future generation of hair restoration surgeons. The honored guests for this year's meeting were Drs. Jean Devroye and Parsa Mohebi, who, along with the world-class international faculty, presented some of the most advanced trends in hair restoration.

Dr. Devroye gave an excellent review of punches and their perfection over the past few decades. Dr. Mohebi provided an in-depth review of the evolution of implanters, accompanied by practical videos demonstrating the use of each type. Other faculty members covered every aspect of hair restoration, from setting up an office to approaching patients and performing procedures. There was a dedicated section focusing on difficult cases and strategies to avoid pitfalls that could lead to less than desirable results in hair restoration.

The two-day meeting featured a packed schedule, balancing theoretical knowledge and hands-on courses, including cadaver lab work sponsored by Saint Louis University and supported by the Practical Anatomy and Surgical Education from the Department of Surgery at Saint Louis University School of Medicine.

The structured lectures were delivered in an interactive format. Practical tips and basic concepts were complemented with hands-on workshops that guided trainees through different stations, equipping them with the essential steps in the hair restoration process. The well-preserved cadavers provided an optimal learning experience, closely mimicking live human tissue, while the experienced faculty offered guidance.

Some of the highlights of the meeting included in-depth education on basic hair restoration concepts by Drs. Steven Gabel, Samuel Lam, and Vance Elliot; technician guides for graft preparation by Aileen Ullrich and Tina Lardner; a review of the ISHRS and preparation for the American Board examination; fundamentals of dermoscopy by Dr. Nicole Rogers; and medical management by Dr. David Josephitis.

Other key highlights included opportunities for physician students to design hairlines, create recipient sites, and harvest hair grafts using both strip and FUE methods with novel technologies. Implantation techniques were also reviewed, giving students hands-on experience with various methods.

There were extensive discussions on handling challenging cases, complications, and repair procedures in hair transplantation. The diverse faculty shared a range of methods, allowing plenty of time for students to ask questions and receive feedback from experienced practitioners.

The surgical assistant section of the workshop ran parallel with the physician training. This workshop is one of the few places that provides hair transplant technicians information on a variety of topics in addition to hands-on practice. This year, the workshop was attended by 22 surgical assistants, who received instruction from 9 faculty members, plus international video lectures. This low student-to-faculty ratio provided an ideal one-on-one instruction opportunity. Each surgical assistant participated in 10 hours of hands-on lab practice and 6 hours of lectures, covering the principles of hair restoration and practice setup.

16TH ANNUAL HAIR TRANSPLANT 360 WORKSHOP

The 360 Workshop is planning its next program for July 18-19, 2025, in St. Louis. It aims to continue its mission of being an excellent platform for educating the next generation of hair transplant surgeons. The hands-on portion of the workshop gives new hair transplant surgeons a chance to learn the delicacies of hair restoration from seasoned surgeons. The cadaver lab allows doctors to work with real human tissue and hair, design hairlines, create sites, and extract and place grafts. ■

NEXT DEADLINE NOVEMBER 10. APPLY NOW!

Help advance the specialty!

Proper research is extremely important in advancing the field. A pillar of the ISHRS is to promote and encourage research.

As such, the ISHRS offers research grants for the purpose of relevant clinical research directed toward the subject of hair restoration. Research that focuses on clinical problems or has applications to clinical problems will receive preferential consideration.

Grant submission deadlines are quarterly: February 10, April 10, July 10, and November 10.

Next deadline: November 10, 2024

The ISHRS Scientific Research, Grants & Awards Committee oversees the ISHRS research grant process including rating the proposals and determining the awardees. Research grant recipients are recognized at the Annual Business Meeting at the next World Congress of the ISHRS.

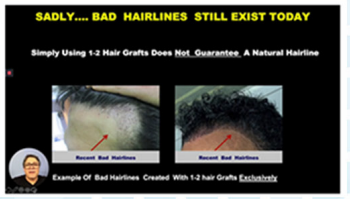
For more information: **https://ishrs.org/physicians/research/**

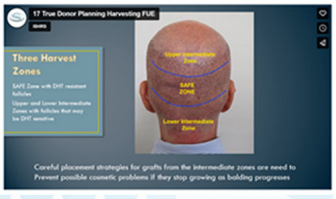
On-Demand Advanced/Board Review Course Bundle

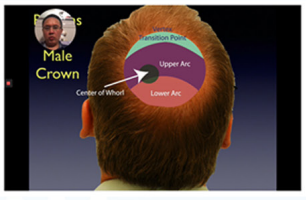
This product offers a comprehensive curriculum for hair restoration surgeons preparing for the ABHRS exams and those looking to refresh their knowledge on advanced-level topics.

Includes:

- 39 Lectures
- 4 recorded practice written& oral mock exam sessions
- Bonus: 3 additional recorded oral mock exam sessions







ISHRS.org/advanced-course
#ISHRSEducation

ISHRS 2024
CME WEBINAR SERIES
Live and On Demand

The current webinar schedule, registration information, and additional details may be found at the following link:
https://ISHRS.org/ishrs-2024-cme-webinars

Please note that CME Webinars must be viewed and claimed by January 10, 2025.

Available On Demand

Newest Technology Available
Moderators: Nicole E. Rogers, MD, FISHRS | USA
Otavio Boaventura, MD | Brazil
August 14, 2024

Patient Selection: Yes or No to Hair Restoration Surgery?
Moderators: David S. Josephitis, DO, FISHRS | USA
Miriam Scheel, MD | Guatemala
January 17, 2024

Diagnosing Challenges and New Techniques
Moderators: Vance W. Elliott, MD, FISHRS | Canada
Ratchathorn Panchaprateep, MD, PhD, FISHRS | Thailand
July 10, 2024

Emergencies and Complications: Prevention and Treatment
Moderators: Robin Unger, MD | USA
Shady El-Maghraby, MD, MSc, FISHRS | Egypt
March 6, 2024

Regenerative and New Allopathic Medicine for Hair Loss
Moderators: Guillermo Guerrero, MD | Mexico
Chiara Insalaco, MD, PhD | Italy
May 15, 2024

Best CSI Presentations and Video Tips
Moderators: Jennifer Krejci, MD | USA
Steven P. Gabel, MD, FISHRS | USA
April 10, 2024

Registration Fees per Webinar

- Physician Attendee of ISHRS 2023 World Congress, $0 USD
- ISHRS Physician Member, Non-Attendee of ISHRS 2023 World Congress, $75.00 USD
- ISHRS Physician Pending-Member, Non-Attendee of ISHRS 2023 World Congress, $100.00 USD
- Physician Non-Member, Non-Attendee of ISHRS 2023 World Congress, $125.00 USD

The International Society of Hair Restoration Surgery is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The International Society of Hair Restoration Surgery designates this Other Activity (blended synchronous and enduring) for a maximum of 2.00*AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Note: CME Credit may only be claimed one time for each webinar.

ACCME ACCREDITED

Classified Ads

*Please note that the ISHRS is not responsible for the personal actions of anyone who posts or responds to a Classified Ad. Any and all transactions and communications with other members are entered into "at your own risk" and are between you and that individual. If you believe a law has been broken or fraud has occurred, please contact the appropriate enforcement agency.

You remain solely responsible for any content you post. Furthermore, you agree to indemnify and hold harmless the ISHRS, its staff, and its subsidiaries for any and all consequences of your actions. The ISHRS reserves the right to reveal your identity (or any other related information collected on this service) in the event of a formal complaint or legal action arising from any situation caused by your use of the Classified Ads.

Seeking Hair Restoration Physicians & HT Team Members

Our company is seeking experienced Hair Restoration Surgeons, RNs, PAs, and techs for our offices in **Kansas City (MO)**, **Scottsdale**, and **Chicago**. We specialize in FUE manual extraction and provide everything from space, supplies, and management to each team. Opportunity to make $500,000–$1,000,000/year as a physician. Relocation and competitive pay for staff depending on skill level. Relocation packages available.

Please send résumés to **Tu.Tran@advancedhair.com**.

For Sale—Latest ARTAS iXi Robotic Hair Restoration System

Latest ARTAS iXi Robotic Hair Restoration System – Don't buy an outdated robot – Large Discount – Like New – Call **1-407-502-2101**. This robotic hair transplant system offers precise, efficient, and repeatable harvesting with simultaneous recipient site making and implantation functionalities in a single, compact platform.

Call **1-407-502-2101**

For Sale—ARTAS iX Robot

This is the 2023 i9 version (purchased brand new in May of 2023 from Venus Concepts). Very gently used, basically in NEW condition. Chair included (required for the system to work properly). Still has warranty for the next year.

Will sell disposable kits (if any remaining) with the system. Asking $95,000. Will consider covering shipping cost.

Please reach out to Emily Jiles at **1-941-867-7682** (office) or via email at **emilyannejiles@gmail.com**.

For Sale—Two ARTAS Robots: iX Robot & 9x Robot

Anderson Center for Hair in Atlanta has two ARTAS robots for sale: one is an iX, and the other is a 9x. Both have been meticulously maintained by Venus. Also available is an ARTAS chair, and 13 unopened surgery kits. All robots and equipment are like new and functioning perfectly.

Priced to sell; call and make an offer. First reasonable offer will be accepted.

Email **ArtasRobots@gmail.com** or call **404-256-4247**.

Calendar of Hair Restoration Surgery Events

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

DATES	EVENT/VENUE	SPONSORING ORGANIZATION(S)	CONTACT/INFORMATION
OCT 15, 2024	ABHRS Oral Exam *(in person)* In conjunction with the 32nd World Congress of the ISHRS *Denver, Colorado*	American Board of Hair Restoration Surgery www.abhrs.org	https://abhrs.org/certification/certification-exam-dates/
OCT 15, 2024	Live Surgery Workshop *Denver, Colorado, USA*	International Society of Hair Restoration Surgery www.ishrs.org	www.32ndannual.org
OCT 17-19, 2024	32nd World Congress of the ISHRS *Denver, Colorado, USA*	International Society of Hair Restoration Surgery www.ishrs.org	www.32ndannual.org
NOV 11, 2024	11.11 ISHRS World Hair Transplant Repair Day Fight The FIGHT Public Awareness Campaign	International Society of Hair Restoration Surgery www.ishrs.org	https://fightthefight.ishrs.org/hair-transplant-repair-day/
JUL 18-19, 2025	16th Annual Hair Transplant 360 Cadaver Workshop *St. Louis, Missouri, USA*	Saint Louis University School of Medicine, Practical Anatomy & Surgical Education In collaboration with the International Society of Hair Restoration Surgery	https://slu.edu/medicine/pase
OCT 23-25, 2025	33rd World Congress of the ISHRS *Berlin, Germany*	International Society of Hair Restoration Surgery www.ishrs.org	
MAY 28-31, 2026	14th World Congress for Hair Research *Seoul, Korea*	Korean Hair Research Society	www.hair2026.org

Educational Maintenance Requirements for Full Members and Fellow Members

Beginning in January 2024, a new POINT SYSTEM was introduced to allow more choices for full Members and Fellows Members to meet the requirements. Details can be found at:

https://ishrs.org/physicians/list-ishrs-approved-meetings-meet-additional-minimum-educational-requirement/

Mission: A global hair restoration medical society committed to improving patient outcomes by promoting member education, collegiality, research, innovation, ethics, and public awareness.

2023–24 Board of Governors

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2023–24 Chairs of Committees

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Nominating Committee | Bradley R. Wolf, MD, FISHRS
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ISHRS Representative to European Committee for Standardization, Task Force 403 | Greg Williams, MBBS, FISHRS
Annual Giving Fund Chair | John D.N. Gillespie, MD, FISHRS

AD HOC COMMITTEES
Women in ISHRS Task Force | Aman Dua, MBBS, MD, 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 Association of Hair Restoration Surgery
British Association of Hair Restoration Surgery
China Association 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
Mexican Association of Trichology and Hair Transplantation
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

1. Articles should be written with the intent of sharing scientific information with the purpose of advancing the art and science of hair restoration and improving patient outcomes.
2. If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail. If intra-operative or immediate post-operative photos are presented, please submit photos that show results (at least 6 months after surgery) of the procedure being presented.
3. Articles submitted with the sole purpose of promotion or marketing will not be accepted.
4. Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
5. Trademarked names should not be used to refer to devices or techniques, when possible.
6. 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 with experience in the area in question for the purpose of obtaining further 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 blind fashion to make recommendations about its acceptance, further revision, or rejection.
7. Once the manuscript is accepted, it will be published as soon as possible, depending on space availability.
8. All manuscripts should be submitted to **forumeditors@ishrs.org**.
9. An Author Authorization and Release form must be individually completed by every author listed on the byline and the Word document (not a fax) submitted at the time of article submission. The form can be obtained in the Members Only section of the ISHRS website at **www.ishrs.org**. This release is meant to be signed electronically directly in the Word document. Simply open on your computer, fill in the highlighted fields, and return the Word document with your submission.
10. All figures and tables should be sized down to no greater than 6 inches in width and sent as separate attachments to your email.

11-17. For the complete list of instructions and downloadable *Article Submission Guidelines Checklist* and *Author Authorization and Release Form*, go to: **https://www.ishrs-htforum.org/content/authors**.

Submission deadlines:
October 5 for November/December issue
December 5 for January/February issue
February 5 for March/April issue

Classified Advertising Guidelines for Submission

To place a Classified Ad in the *Forum*, email ishrsduckler@gmail.com. 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 $125 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:
ishrsduckler@gmail.com

ISHRS World Hair Transplant Repair Day: 11.11.24

Save the date and plan to participate!

Visit the media kit page in the link below for all resources so you can start planning:

https://fightthefight.ishrs.org/media-kit/

PARTICIPATE IN HAIR TRANSPLANT REPAIR DAY: NOVEMBER 11, 2024

How Hair Transplant Repair Day Works

- ISHRS Physician Members or members of a Global Council Society who wish to participate may request to have their name added to the **HairTransplantRepairDay.org** page.
- Potential patients may reach out individually, as they choose, to listed physicians.
- Some individuals may already have a reparative case scheduled for 11/11.

Do you have a case study to share?

We encourage you to submit your case in your preferred language for inclusion on the website. This not only helps us reach a wider audience through our paid ads program and journalist outreach efforts, but also gives you the chance to gain global exposure by sharing your story.

For questions, email **bmejia@ishrs.org**.

INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

HAIR TRANSPLANT FORUM INTERNATIONAL
International Society of Hair Restoration Surgery
1932 S. Halsted St., Suite 413
Chicago, IL 60608 USA

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DENVER2024

32ND WORLD CONGRESS OCT 17-19
WITH LIVE SURGERY WORKSHOP OCT 15

32NDANNUAL.ORG

Join us for a Live Surgery Workshop on October 15 and the World Congress from October 17-19. The ISHRS World Congress provides the highest quality education for hair restoration surgeons.

TUESDAY 15	WEDNESDAY 16	THURSDAY 17	FRIDAY 18	SATURDAY 19
Live Surgery Workshop	Pre-Courses	ISHRS World Congress		

INTERNATIONAL SOCIETY OF ISHRS HAIR RESTORATION SURGERY