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Extended Abstract  
Deadline:  
MARCH 23, 2020



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## Coronal or Sagittal Incisions: A Mathematical Approach to the Problem

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### ABSTRACT

**Introduction:** The debate on using sagittal (parallel) or coronal (perpendicular) incisions is ongoing. However, it is our belief that coronal incisions reduce injury to the subdermal vasculature while allowing for higher graft density. In this article, we will use mathematics to support our stance that coronal incisions cause less injury to the recipient area.

**Objective:** To mathematically prove why coronal incisions cause less trauma to the recipient area and to quantify the exact percentage of graft density increase.

**Method:** The trigonometric theory was applied to find an equation that correlates the size of both sagittal and coronal incisions with the size of a square-end blade at any given angle.

**Results:** Using sagittal incisions with a square-end blade directed at an acute angle results in a wound that is significantly greater in length than the size of the blade. However, using coronal incisions, the blade creates the same size wound independently of the entry angle.

**Conclusion:** Coronal incisions minimize injury to the skin while maximizing graft density, potentially allowing for better results.

**Key words:** sagittal (parallel) incisions, coronal (perpendicular) incisions, perpendicular angle grafting

### INTRODUCTION

Hasson first presented the concept of perpendicular angle grafting and has explained and presented over the years the advantages of using coronal versus sagittal incisions.<sup>1,2</sup>

According to his research, coronal incisions reduce the injury to the subdermal vasculature because the incisions are smaller, which also allows for higher graft density, easier placement, and greater control of graft angulation.

In this study, using trigonometry,<sup>3</sup> I will prove why coronal incisions cause less injury to the recipient area. In addition, not only will I quantify this reduced injury, I will also quantify the increase in achievable density.

There is the opinion amongst hair surgeons that the use of sagittal incisions helps prevent cutting across Langer's lines, thus protecting the vessels that are emerging from the subdermal vascular plexus. Similarly, there is the opinion that coronal incisions are more likely to cause vascular damage.

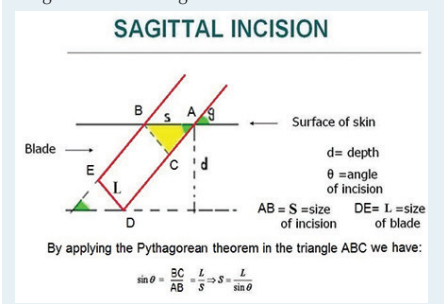
Personally, I have never observed decreased survival rates using coronal incisions. Therefore, I will attempt to prove that, by using coronal incisions, the injury to the skin decreases remarkably while allowing for higher density and improved hair coverage.<sup>4</sup>

### METHOD

The primary difference between coronal (perpendicular) and sagittal (parallel) incisions is their direction in relation to the hair flow. The orientation of coronal incisions is perpendicular to the direction of the hair, whereas the orientation of sagittal incisions is parallel to the direction of hair at any given point on the scalp.<sup>1</sup>

Figure 1 shows a size L square-end surgical blade creating a sagittal incision at angle  $\theta$ , whereas Figure 2 shows the same blade cre-

FIGURE 1. A sagittal incision made by a square-end surgical blade at angle  $\theta$ .



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## HAIR TRANSPLANT FORUM INTERNATIONAL

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

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

POSTMASTER Send address changes to:

*Hair Transplant Forum International*  
*International Society of Hair Restoration Surgery*  
1932 S. Halsted St., Suite 413  
Chicago, IL 60608 USA  
Telephone 1-630-262-5399  
U.S. Domestic Toll Free 1-800-444-2737  
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Cyberspace Chat	Robin Unger, MD
Hair's the Question	Sara M. Wasserbauer, MD, FISHRS
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Regenerative Medicine and Hair Loss	Gorana Kuka Epstein, MD
The Notable Articles Project	Jeffrey S. Epstein, MD, FISHRS Aditya K. Gupta, MD, PhD, FISHRS

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

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*International Society of Hair Restoration Surgery*,

1932 S. Halsted St., Suite 413  
Chicago, IL 60608 USA

Printed in the USA.



Official Publication of the  
*International Society of Hair Restoration Surgery*



## President's Message

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The global coronavirus (COVID19) pandemic has impacted several of our upcoming educational activities. Because of this global threat, we were forced to cancel the March Cowgirl Hair Loss Workshop in Texas (chaired by Dr. Carlos Puig) and the ISHRS

Euro 2020 Workshop in Athens planned for June (chaired by Dr. Konstantinos Anastassakis). We recognize how important it is to take the necessary precautions. The health and safety of our attendees, faculty, and staff are our number one priority. The ISHRS is continuously monitoring the situation. Although we will make all efforts to keep you updated, the situation is changing daily so new decisions may well have been adopted by the time you receive this issue. In the meantime, our staff will continue working on the rest of the educational activities as planned. Other initiatives that the ISHRS leadership is taking include the following:

**Creation of the ISHRS European Council.** Many ISHRS members from Europe met in Bangkok and advised us on the importance for and interest in creating a European branch of the ISHRS. After a few meetings of an ad-hoc Task Force Committee, we have decided to launch this branch in April 2020. It will be named the "ISHRS Europe Council" and comprise 8 members from European countries. The first Chair of this new European Council will be Dr. Bessam Farjo; other members of this first Council will be Asim Shahmalak (UK), George Zontos (Greece/Denmark), Geza Sikos (Hungary), Vincenzo Gambino (Italy), Andreas Finner (Germany), Conradin von Albertini (Switzerland), and myself (Spain). I want to emphasize that the members of this Council will rotate periodically (every 1-3 years), and many ISHRS European members will have the chance to form part of it and contribute their ideas. Our aim is for this Council to be a permanent part of the ISHRS, and there is no intention of forming a new society. As occurs with other ISHRS committees, the next Council members will have to be approved by the BOG.

Following are some of the reasons that help to explain the rationale behind the formation of this ISHRS Europe Council:

1. The space left unoccupied by the ISHRS for educational activities in Europe has been taken advantage of by other hair restoration societies. As an initial measure, the European Council will organize a yearly workshop and/or may even liaise with other national societies that belong to the Global Council.
2. The ISHRS will increase its visibility in Europe, hoping to increase the number of European hair restoration surgeons that will join the ISHRS.
3. It will be possible to more effectively combat the specific problems faced by European members regarding the proliferation of black market clinics, problems that differ from those occurring in United States or Asia.
4. The existence of the Council will enable a unified voice before the European health authorities and legislators with respect to the implementation of policies and regulations that affect the hair restoration sector.
5. The discussion will be facilitated of new initiatives that

can protect the principle of best practices and ensure only well-trained and suitably qualified doctors are allowed to perform hair restoration surgery. One such initiative would be the creation of a European-recognized certification of hair restoration surgery, similar to that issued by the American Board of Hair Restoration Surgery.

**Travel grants for the ISHRS World Congress meeting.** As a new incentive, this year we are offering 10 travel grants that include free registration plus \$1,000 USD for some of the doctors whose abstracts are accepted. For more information about who will qualify for these travel grants, please visit <https://www.28thannual.org/travel-grant/>.

**The ISHRS will honor featured members at future World Congress meetings.** As a token of gratitude to members who have made important contributions to our society, it has been decided that each year two of the Guest Lectures at the Congress will be named after our members. One will honor a founding member of the ISHRS and the other an ISHRS member who has made a significant contribution to the running of the society.

**Members will be permitted to take photographs at the World Congress Meeting.** We have changed the policy concerning photography at meetings. We have decided to follow the policy of other reputable scientific societies such as the AAD (American Academy of Dermatology) and will allow attendees to take photos during the talks, provided they are exclusively for personal and not commercial use and are not disruptive (no flash will be allowed).

**Spread our message through Fight the FIGHT campaign.** After launching the Fight the FIGHT campaign last November, it is time to spread our message through social media networks and other communicative platforms. We would like to reach as many people as possible worldwide. A number of initiatives are underway including the following:

1. **Google ad grant program:** We have received approval for a Google Ad Grant Program for non-profit organizations through which we will receive up to \$10,000 USD a month in free Google Ads.
2. **Translation of campaign microsite:** The Spanish translation of the campaign microsite has been completed: <https://luchafight.ishrs.org/>.
3. **International journalist outreach:** We are using the services of Cision, which has one of the world's largest journalist databases, to gain access to journalists worldwide.
4. **Video editing:** We have hired a video editor for the raw footage captured in Bangkok by members who have reported to us about the black market there. This content will be added to the campaign microsite in the form of blogs.
5. **YouTube and social media ads:** We will be publishing paid media ads on Facebook, Instagram, and YouTube to extend the reach of the campaign.
6. **Influencer campaign:** We will continue with an influencer program where Instagram users can share campaign images and/or videos on their own channels. ■

## Co-Editors' Messages



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Oh, these are exciting times! While each world crisis is different, this is now the third time I (and many of our more experienced colleagues) have faced challenging times (the 2008 banking and market collapse threatening a worldwide depression, and 9/11 invoking fear

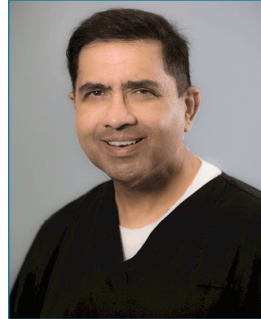
of a change in the world order and our safety from attack), and as such I would like to provide some perspective. Please do not think I am equalizing a threat to life to that of financial issues, but there are some common themes.

Challenging times call for strong leadership. Whether talking about a nation or the world at large, or on a more personal level our practices, a leader is essential for bringing people together, encouraging working together to face the challenge, and providing a sense of security. Each team member of your practice should be educated on the importance of working as a team towards a common goal. This means maximizing safety and patient care, and going the extra mile (or kilometer) to make the patient experience as positive as possible. For at least some time to come, due to a combination of financial, travel, and safety concerns, the demand for elective procedures will decrease; after all, having a fuller head of hair or beard or eyebrows will suddenly not seem as important. This means that each patient interaction with your practice should be handled with the most attentive and caring approach by everyone in the office. Your practice needs to rise to the challenge, becoming the best it can be. This includes tightening up office policies, handling each inquiry expeditiously and carefully, and expecting every team member to treat every patient with the utmost respect and care. Times like this are characterized by fewer in number and more discriminating patients, who will take more time to research treatment and physician options. My advice to younger doctors has always been, "If you become recognized as an expert, you make your practice largely recession-proof."

There is a rainbow after every storm. It may take months or more, but humans are by nature consumers, and there are few purchases more life-enhancing than a better head of hair.

In this issue, Editor Emeritus Bernie Nusbaum focuses on proper hair loss etiology diagnosis, Sam Lam describes his use of Botox® in hair patients, and George Zontos's cover article provides a mathematical assessment of recipient site techniques with commentary from Jerry Wong to provide a clinical perspective. In fact, several of the articles have invited commentary to enhance the learning from the papers. We also have three new columns: Marwan Noureldin's "Hear from the Assistants" will showcase assistants and the lessons they can provide, David Perez-Meza's "In Focus: Global Council Societies" will cover the many international hair societies, and a review and reprint of the most important articles to appear in the *Forum* over the past 30 years, chosen by Aditya and me for how they helped shape our specialty, will appear in the new column, "The Notable Articles Project," which in this issue reprints the inaugural 1990 *Forum*.

Enjoy the reading, particularly if you are in home quarantine. ■



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As we face the unknown in this turbulent time, I call for you to remain optimistic. This too, shall pass. Business will certainly not be as usual, but I encourage you to find something positive to focus on—perhaps this is a great time to catch up on the leading research

in our field to make your practice even better once the tides change. We have a great array of research and ideas presented in these pages that will give you a lot to think about!

In this issue, Jeff and I debut an exciting new column we are spearheading along with the Editor Emeriti: "The Notable Articles Project." This column will feature articles from past *Forum* issues and review the impact they have had on the ISHRS community. Our first contribution to this column is the inaugural issue, in its entirety, that was published in September 1990. It is nostalgic to read and think about how far we have come in our field. The *Forum* has been an instrumental player in this process, facilitating the rapid sharing of the ideas that have helped shape and advance our specialty.

Our cover article, by Georgios Zontos, addresses an ongoing debate about the use of sagittal vs coronal incisions when preparing graft recipient sites. Zontos uses an elegant trigonometry approach to demonstrate that coronal incisions produce a much smaller accumulated wound size and allow for higher graft density compared to sagittal incisions. Commentary on this article by Jerry Wong discusses the potential for coronal incisions to cause vascular damage and outlines the guidelines on depth control, blade size, and tumescence that his team follows.

Gregory Williams, as always, provides a thought-provoking piece on "puffery"—advertising claims that are exaggerations or hyperboles. This article is a good reminder that as ISHRS members we are not to mislead clients by claiming to be "the best" hair restoration practice in our advertising. Our society views such claims as unethical. We have a responsibility to not mislead patients with exaggerated, false claims for advertising purposes. Some degree of puffery is acceptable as every business needs to promote itself, but it is best to have proof (awards, ratings) to back up your claims.

A perspective on WAW implanters is presented by Aileen Ullrich. This article provides a detailed account of using these implanters and reinforces the notion that, regardless of the tool used, implanting grafts is an intricate step that requires delicate handling and proper training.

A new idea is shared by Sam Lam in his article about patients experiencing severe intractable pain along the linear-strip excision donor scar. This article describes instantaneous pain relief upon the injection of a few units of botulinum toxin into the painful area. In most patients, pain is eliminated without regression after a few sessions of this treatment. Thus, this is an attractive approach to effectively eradicate pain from occipital nerve damage incurred from strip excision.

As I sign off on the second issue as co-editor, I am again amazed at the innovative ideas and lively debate the *Forum* always brings. Happy reading! ■