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## Female hairline lowering in two hours

Mario Marzola, MBBS Adelaide, Australia [mario@marzola.net](mailto:mario@marzola.net)

The female hairline varies in so many ways that makes it attractive and distinctive: a widow's peak, a cowlick, growth at different angles, varying amounts of temporal peaks, and varying height above the glabella. These features were described in detail by Dr. Bernard Nusbaum in a recent *Forum* article.<sup>1</sup> However, some ladies are born with a hairline that is higher than they like for aesthetic purposes and management. More than about 6.5cm above the glabella gives the impression of a receding hairline and makes them look older than their years and more masculine. It gives them a large forehead and compels them to grooming forward to hide it. However, the hair behind this high hairline grows out at a more vertical angle and makes forward grooming difficult. It is not surprising, therefore, that some ladies look for ways to lower the hairline to a more average position.

Traditionally, this has been handled by placing hair transplants in front of the high hairline. The results have improved as follicular unit transplants have enabled a more natural appearance. However, there are always concerns about adequate growth, natural alignment, and density. Often, it will take a number of sittings to produce an acceptable outcome.

The alternative to transplants is to lower the existing hairline en masse by the hairline lowering procedure described here. It was first popularized by Dr. Sheldon Kabaker,<sup>2</sup> but a decreasing number of hair surgeons are familiar with it possibly due to the success of follicular unit transplants and the move to minimal surgery. This procedure takes advantage of the natural hair distribution and density behind the hairline and the scalp's mobility to simply move it forward. In 2 hours, the hair-bearing scalp is placed, on average, 2cm lower than it was before. While at first glance it can appear to be beyond what an average hair transplant surgeon can manage, our many years of experience in moving scalp around during the scalp reduction and flap eras tell us that it can be done safely and successfully with some preparation.

Following is a general description that serves as an introduction to the procedure. A complete set of pictures with descriptions and a video explaining all aspects from start to finish are available at [www.ndsphotosandvideos.com](http://www.ndsphotosandvideos.com).

With this procedure, usually one advancement procedure is enough. If needed, a second advancement can be done a few months later when the scalp is loose again, or a small sitting of follicular unit transplants can be used to round out the hairline in the temples. Either way, it is completed more quickly than with transplants alone. In addition, the hair behind the lowered hairline is original in growth and density. Massaging the scalp in a backward-forward movement for a month before the surgery can improve the forward advancement achieved. Numbness of the advanced scalp is temporary and handled well by the patients as long as they are forewarned. This loss of feeling in the front third of the scalp is inevitable because the sensory nerves are cut by the hairline incision.

The patient needs to be comfortable with adequate sedation and pain relief. Pre-medication with a strong analgesic, such as paracetamol with codeine, and a sedative, such as temazepam, will calm the patient. Further sedation in the operating room depends on the doctor's facility and experience. Without it, the next step needs to proceed more slowly as the local anaesthetic is more painful if injected quickly. A ring block of local anaesthetic with epinephrine is administered just above the eyebrows, around the sides just above the ears and around to the back (Figure 1). The link above will give details of technique and the strength and volume to use. However, you can expect that all of the scalp above the ring block will be numb and vasoconstricted.

A trichophytic incision (Figures 2 and 3) is made at the hairline (see video),



Figure 1. Stronger local anaesthetic just above the eyebrows.



Figure 2. Trichophytic hairline incision transecting follicles.

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## Hair Transplant Forum International Volume 22, Number 6

*Hair Transplant Forum International* is published bi-monthly by the International Society of Hair Restoration Surgery, 303 West State Street, Geneva, IL 60134 USA. First class postage paid at Chicago, IL and additional mailing offices. POSTMASTER: Send address changes to *Hair Transplant Forum International*, International Society of Hair Restoration Surgery, 303 West State Street, Geneva, IL 60134 USA. Telephone: 630-262-5399, U.S. Domestic Toll Free: 800-444-2737; Fax: 630-262-1520.

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## President's Message

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Most physicians intuitively understand the importance of having the respect of both their patients and professional peers. Last year I was given the honor of being elected Vice President and President-Elect of your ISHRS. I was shocked nearly speechless when you honored me again in the Bahamas with the Golden Follicle Award. As I begin my presidency, I wish to thank all of you who have worked hard with me to serve our profession for your trust, confidence, and continued friendship.

The Bahamas meeting was one of the largest meetings the ISHRS has ever had, and accomplished more than just the commencement of the ISHRS's 3rd decade, and increasing our membership by 20%. At this meeting, the membership approved a bylaws change creating a new membership category, that of "Fellow, International Society of Hair Restoration Surgery" (FISHRS). To my mind's eye, this represented the last step in organization of a true medical subspecialty. We all have worked together to organize meetings and webinars that have attained an ACCME recognition for quality, to repeatedly provide one of the best Live Surgery Workshops in all of medicine, to publish better and better *Forums*, and to develop sound, credible Fellowship Training Programs and an independent, objectively-monitored board examination process—all so that physicians around the world would be encouraged to learn how to better serve their patients. Now we agree to recognize physicians who demonstrate they are truly committed to the art and science of hair restoration by earning the designation of "Fellow" of our Society. I hope that all our members, new and old, will strive to attain this designation, as I believe doing so will provide patients with caring, insightful physicians.

Yes, over the past 20 years, hundreds of us coming from many different specialties have worked together to define and create a new medical specialty. We have long recognized that the most important function of any medical society is to help its members learn how to properly integrate newly discovered scientific facts and therapeutic interventions in a way as to benefit their patients. Every discovery always leads to more questions about the real risk-benefit ratio for the patient that can only be answered with evidence based medicine (EBM) studies. Your ISHRS will be helping the membership search for clarification, preferably through EBM studies, of many patient care issues currently of concern such as finasteride and persistent sexual dysfunction, FUE vs. FUT, effective use of integrated medical and surgical therapies, role of genetically based therapeutics, stem cell tissue culturing, and wound healing growth factors in enhancing outcomes in graft survival or the regrowth and preservation of hair. I invite all who have an interest in these fields to share your knowledge, participate in these task forces, and help all of us become better physicians.

Over the past 20 years, the ISHRS has grown to a strong professional society. Those who went before us left us with a fiscally sound organization whose culture is focused on open communication serving the search for truth and the sharing of knowledge. We are a membership that encourages close friendships and critical thought. We are unafraid of controversy and share a common goal: for all to be able to better serve their patients. ♦

## Co-editors' Messages

Nilofer P. Farjo, MBChB Manchester, United Kingdom [editors@ISHRS.org](mailto:editors@ISHRS.org)



It has been a momentous year for the ISHRS and the *Forum*. A lot of new concepts and controversies have been discussed. But with a new year on the horizon, what is in store in hair loss treatment? We seem to be on the brink of many new and exciting breakthroughs from research into new drugs, molecular modulators, and cell therapy to new instrumentation, which all look promising but have yet to come to fruition.

Innovation is great, but do we also need to reevaluate some of the “dogma”? Let’s look at some examples. Is there such a thing as recipient site influence? Some small studies have suggested this. But, if so, why do the scalp hairs transplanted on Dr. Kim’s leg still grow long after many years? Are the changes perhaps due to damage or the quality of the skin into which they are placed rather than recipient site modulation as has been suggested? Our own small study looking at eyebrow transplants didn’t show this effect as only 1 patient had a change in hair growth. Patient variables are so intricate that taking a single case as “proof” rather than random chance is not the way forward in my opinion.

Very often, when you look at something experimentally, you can unintentionally skew your data to fit the premise. Without rigorous experimental design, proof of concept is very difficult to achieve. This doesn’t mean that we shouldn’t carry on trying out our new techniques as surgery is by its very nature something that doesn’t lend itself to double-blind studies anyway.

Let’s look at another example: genetics. We were always led to believe that genetics of hair loss were autosomal dominant with incomplete penetrance. But now we know that the X chromosome plays a significant part via the androgen receptor gene. We once thought minoxidil increased hair growth by increasing blood flow. But we now know that this isn’t the reason. We thought finasteride was safe then we thought it was harmful, now we think it’s safe again.

So what else that we thought was true is not so? How about the concept of the permanent donor zone and transplants lasting throughout one’s life? Russell Knudsen explores this concept in the next two editions in his Controversies column. We hope that our readers will get involved in these debates and send in their opinions and patient photographs to either back up or refute these claims. ♦

William H. Reed, MD La Jolla, California, USA [editors@ISHRS.org](mailto:editors@ISHRS.org)



“Did I try to leave the world a little better place by my efforts in life?” This seems to be one of the quintessential questions of Existentialism. Whether or not we did is not as relevant as whether we tried. Professionally, I feel strongly that attending meetings such as our recent annual meeting in the Bahamas is an important part in knowing that I have tried. Why? These meetings bring into focus the issues that are shaping our field at that moment

of our specialty’s development. The topics discussed make me critically review my practice standards. How can I optimize the benefit to my patients and become aware as quickly as possible when I am doing harm?

Hair restoration surgery is multi-faceted and refinements of its nuances still become apparent to me even after 17 years of practice. Stacking strip scars and being slow to realize that fine hair can be a contraindication to strip surgery are but two examples of how ignorance can harm my patients. Hair exit angles and interactions with the various hair qualities are but two additional examples of not knowing how many more nuances I still have to perfect. Attending meetings and sharing ideas and experiences both inside and outside the meeting rooms are critical for me to know that I’ve tried my best.

The recent meeting focused on several big categories but the one that stood out was FUE. This young surgical technique has come into its own with the advancement of equipment and the mastery achieved by a growing number of physicians around the world. It probably need not be said that technical mastery of a new surgical technique runs ahead of a mastery of the nuances that maximizes its benefit and minimizes its harm. I came away from the meeting impressed that FUE is in such a state in its adolescence and needs the dialogue from the world body of surgeons to refine and disseminate the nuances within.

The concept of the “safe zone,” for instance, is critical and complex. A consensus of its interdependence with age, individual scarring qualities, hair qualities, and anticipated balding

must be achieved and disseminated both widely and quickly to avoid an injury that will become apparent only years after the mistake. My current opinion is that not all young patients are candidates for FUE. This “non-candidate” would be the young man who needs enough grafts extracted for his balding pattern that would result in an observable band of decreased density in the restricted, relatively narrow “safe zone” that is mandatory for most young men. A maximum harvest of this narrow safe zone limits styling options to many of these young men: not too short to show the band of harvested and, therefore, lower density “safe zone” contrasting with the adjacent, unharvested and higher density “unsafe zone.” On the other hand, it can’t be too long a hair style lest there be a “lid” effect created by the normal density “unsafe zone” falling over the depleted “safe zone” that is several centimeters wide. In my opinion a strip excision would be preferable in some of these situations.

An FUE solution to this “density gradient” created by the FUE is diffuse harvesting well outside of the “safe zone,” because that would ablate the abrupt change in densities. Violation of the safe zone, as nuances are refined, may become an option for some patients. They may be found to achieve adequate cosmesis from inherently good scarring tendencies, or an awareness of optimal punch size or ACell administration. Perhaps we will refine how intentional transection of the follicular unit ameliorates the hypopigmentation of the scar that creates the problem. If balding were then to occur, the only downside would be an impermanence of the grafts and not the multiple punctate scars becoming unveiled. I will be asking some of you to remark on the safe zone in the next *Forum*, and I would like to invite each of you to send in your thoughts so that this critical area can rapidly reach a refined consensus.

Another area needing investigation is whether FUE depletes the donor such that fewer hairs can be harvested compared to strip excision. Again, that point of depletion is dependent upon multiple factors including hair length, curl, diameter and color. It was mentioned at the meeting that harvesting only a portion of the follicular unit can make the FUE scar less visible, yet

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## Reed Message

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transected hairs by our current literature show a lower percentage of growth and finer hair fiber when growth does occur. However, is the transection from the FUE harvest different from existing studies that deal with transection of *in vitro* follicular units? At the meeting, Dr. Jose Lorenzo, while addressing another topic, showed magnified photos of heavily harvested areas that, if consistent with the studies mentioned above, should have shown miniaturized hair growth from transected follicles. But none were present! Dr. John Cole presented data that failed to show a quicker loss of hair mass by FUE compared to strip harvest. This is not what I would expect since FUE takes only hair and not the bald skin between the follicles that a strip harvest removes. Accordingly, FUE's hair mass should decrease more

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

- Articles should be written with the intent of sharing scientific information with the purpose of progressing the art and science of hair restoration and benefiting patient outcomes.
- If results are presented, the medical regimen or surgical techniques that were used to obtain the results should be disclosed in detail.
- Articles submitted with the sole purpose of promotion or marketing will not be accepted.
- Authors should acknowledge all funding sources that supported their work as well as any relevant corporate affiliation.
- Trademarked names should not be used to refer to devices or techniques, when possible.
- Although we encourage submission of articles that may only contain the author's opinion for the purpose of stimulating thought, the editors may present such articles to colleagues who are experts in the particular area in question, for the purpose of obtaining rebuttal opinions to be published alongside the original article. Occasionally, a manuscript might be sent to an external reviewer, who will judge the manuscript in a blinded fashion to make recommendations about its acceptance, further revision, or rejection.
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- All photos and figures referred to in your article should be sent as separate attachments in JPEG or TIFF format. Be sure to attach your files to the email. Do NOT embed your files in the email or in the document itself (other than to show placement within the article).
- We CANNOT accept photos taken on cell phones.
- Please include a contact email address to be published with your article.

### Submission deadlines:

December 5 for January/February 2013 issue

February 5 for March/April 2013 issue

quickly than a strip harvest, at least up to the point where the strip harvest starts to decrease FU density from its stretching of the donor area. While we would all agree that we do not serve our patients' best interests if we unnecessarily and unknowingly deplete their donors, more studies are needed to determine what surgical nuances achieve this goal.

Even accepting such uncertainties, I saw some presentations of the age/"safe zone" mismatch that will almost certainly become an eye sore and embarrassment in the years ahead. Only by attending meetings such as ours can answers to questions such as these become apparent for all of us. Have we left the world a little better place? Have we tried our best to have minimized injuring others in the process? For myself, I can only be comfortable that I have tried by regularly coming to meetings so that I can challenge my current practices. ♦

## INTERNATIONAL SOCIETY OF HAIR RESTORATION SURGERY

**Vision:** To establish the ISHRS as the leading unbiased authority in hair restoration surgery.

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

## Notes from the Editor Emeritus

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### LED lighting



Figure 1. A-D: Rapid burst pictures under a fluorescent light demonstrate that pictures taken at faster than 1/60 of a second will show considerable variation.

A little over a year ago, I was talking with a friend, Marv Selvy, and we started discussing our current interests. I mentioned an interest in LED lighting and cross polarization. While he wasn't that familiar with cross polarization, his career work was with LED lighting, mainly overhead lighting for businesses. Although LED lights are more expensive than incandescent and fluorescent lights, they save money by requiring less frequent bulb changes and less energy consumption (half the consumption of fluorescents). I mentioned that LED ceiling lights with dimmers might be valuable in a surgical room or in dermatologic exam rooms. Recently, a Cincinnati lighting company produced a couple of styles of ceiling LED lights, both of which match the standard fluorescent sizes: one with an opal filter and the other an open style with "kick out" lighting. The "kick out" style sends a very wide-angle light that spreads the light over the room. The "opal" filtered light looks more like a skylight. We tended to give a very slight nod to the opal filtered light because of its very clean look.

LED lighting has been slow to be established in homes and offices because they weren't made to be easily interchangeable with current light fixtures, but now that issue has been addressed. Another problem is the expense. LED lighting is about triple the expense of fluorescent lights, but this cost is dropping as the volume of sales increases along with the ability to use less expensive materials. Lux (or foot-candle) output has been a concern in the past but now it is a strength. In one exam room, we had two 1x4-foot fluorescent fixtures that produced 21 foot-candles (210 lux) on the table. Replacing just one of the fixtures with a 1x4-foot opal LED fixture produced 62 foot-candles on the table. But that is not the whole story. LEDs previously have been very difficult to dim and, if available, were very expensive. Now, if desired, they can be made to dim inexpensively—about \$20US. The LED lights have no problem with flicker, in contrast to fluorescent lights, allowing good flashless photography. Fluorescent lights normally cycle 60-80 times/second, requiring a camera aperture to be open for a full cycle or more. This means that speed needs to be 1/60 of a second or slower, making it hard to hold the camera steady enough to avoid movement blur. If skeptical, take some pictures with high speed continuous shooting under fluorescent lights and see for yourself (Figure 1). Additionally, unlike the low "buzz" sound of fluorescent lights, LED lights are very quiet.

But perhaps the nicest features of LED lighting are the life span and color temperature. LED diodes can last from 20,000-100,000 hours. The ceiling lights mentioned above are rated for 60,000-100,000 hours with the maximum intensity after 60,000 estimated at 80%. Using the lights 50 weeks yearly at 40 hours/week would give a lifespan of 30 to 50 years. In other words, time to retire. Particularly nice is the noon daylight spectrum at about 5800K (but the light can be made to almost any color spectrum if a soft, more yellow sunrise temperature is desired; Figure 2). With the ability to dim the light (not available with fluorescent lights), different light intensities can be used in the procedure, such as reducing the intensity in the area of the TV if the patient is watching movies. As opposed to incandescent lights, the color temperature does not become more yellow with dimming. Finally, fluorescent lights contain mercury, an environmental hazard absent in LED lights. I have little doubt that ceiling exam room lighting in medical offices will be from LEDs in the future.



Figure 2. The room on the left is lit with ceiling LED lights while the room on the right is lit with standard ceiling fluorescent lights. The rooms are painted with the same paint.

In addition to ceiling lights, we use a 9x3 pod LED operative light that produces pretty intense light. Each pod lasts 30,000 hours as opposed to 500 hours by our previous halogen bulbs. The light is powerful enough to use for cross polarization, and is done so by cutting out a disc of a linear polarized sheet and attaching it over the light so that it can rotate as needed to reduce glare (Figure 3). When synchronized with a polarized surgical headlamp

## Editor Emeritus

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(LED of course), you get some very nice light free of glare.

Our surgical headlamps are all LED lights with cross-polarization filters. A light with high intensity is needed for cross polarization, but some currently available LED surgical headlamps deliver adequate lighting in order to give good visibility without glare (Figures 4 and 5). At this time, all of our planters use cross-polarized LED lighting, and we find it increases visibility while reducing eyestrain and headaches. One feature we find particularly helpful is that some of the small cutaneous vessels can be seen and avoided when creating recipient sites because the cross polarization allows you to see a millimeter or so below the skin surface. While we enjoy the cross polarization with LED lights, we would still like to see the development of lights with more intensity.

LED stereomicroscopic ring lights are now available and are an improvement over halogen fiber optic lights. Even fiber optic lights from halogen bulbs carry heat, while LED lights carry very little heat. We found that graft temperature under halogen fiber

optic ring lighting is 4° Centigrade warmer than under LED lighting, also giving daylight color temperature and no noise.

Lighting is rapidly changing to LED for many reasons—intensity, environmental safety, photography, color temperature, diode life, durability, and low energy consumption are among them. By the way, for basketball fans, Marv Selvy's brother Frank played at Furman University and is the only player in NCAA Division I history to score 100 points in a single game, the last shot being from half court with 2 seconds left. Marv played basketball for the University of Louisville and isn't so bad himself.

Finally, thanks to Dr. Shiell for an amazing Editor Emeritus historical column in the last issue (commemorative issue) of the *Forum*. Only he could have written such a fascinating, informative column about our early history. ♦

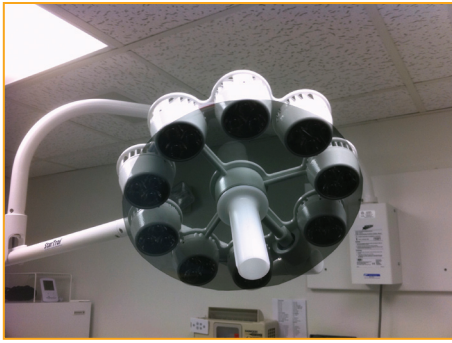


Figure 3. My polarizing filter cut from a larger linear laminated sheet.

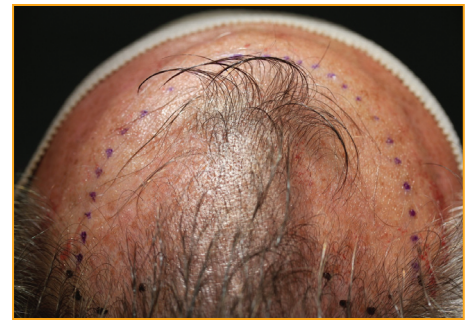


Figure 4. The top of the scalp without cross polarization.

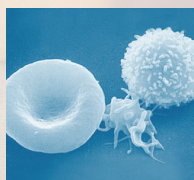


Figure 5. The top of the scalp with cross polarization.

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## Female hairline lowering

from front page

and the hair-bearing scalp behind the incision is lifted in the sub-galeal plane (Figures 4-6). As can be easily seen in the figures (and the video), there is very little vascularity or connective tissue in this plane, so the scalp lifts easily. However, there are two supra-orbital and two supra-trochlear arteries that will be transected at the hairline, so these will need to be cauterized.

The forehead scalp is not loosened in order for it to better anchor the advancing scalp. Once all the undermining is complete, the hair-bearing scalp is waist-coated forward (Figure 7) above or below the forehead scalp to see how much of the latter can be removed.



Figure 3. Temporal-parietal extension of incision to mid scalp.

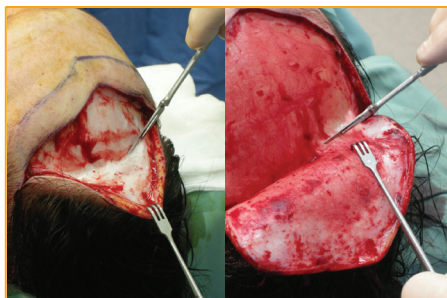


Figure 4. The scalp lifts easily off the skull.

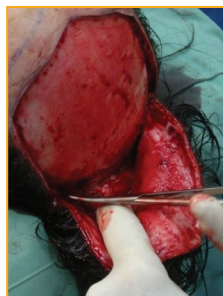


Figure 5. Finger guides the scissors in the sub-galeal plane.



Figure 6. Galeotomies performed with scalpel (or scissors).



Figure 7. Advancing scalp waist-coated under forehead scalp to gauge forward movement.

Then, when the appropriate excision has been done (Figure 8), all that remains is to suture the advanced scalp to the forehead scalp in two layers: galea to galea (Figure 9), with strong sutures such as 1 Vicryl, and the epidermis, with fine sutures such as 6/0 Nylon or 6/0 gut (Figure 10). A second ring block is applied at this time in the same location as the first one, with a long-acting local anaesthetic such as bupivacaine or ropivacaine.

Clean the hair with saline and conditioner, and apply a wrap-around bandage (Figure 11). Give the patient sufficient post-operative pain relief and sedation similar to the pre-medication because there will be a reasonable headache once the second ring block has worn off. Have the patient return the next day (Figure 12) when the bandage can be removed, antibiotic ointment can be used on the sutures, and any form of antiseptic shampoo can be used to wash the hair when they go home. Have them return



Figure 8. Appropriate amount of forehead scalp is excised.

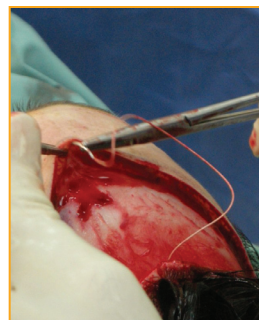


Figure 9. Strong galeal sutures take all the tension of closure.



Figure 10. Surface is closed accurately with fine sutures under no tension.

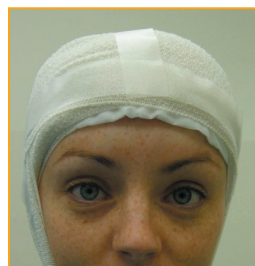


Figure 11. Light bandage for one day.



Figure 12. Appearance at 1 day post-op.

after 7 days (Figure 13) to remove sutures, and for follow-up again at 1 and 9 months. There may be some temporary shock loss just behind the hairline, but we have not noted any cases of infection, black eyes, or other serious complication.

It is important to take photographs at each stage and document everything (Figure 14). Follow the steps in the video closely, look at all the photographs supplied, and don't be too disappointed if the advancement in the first few cases is less than 2cm. There is a learning curve, so make the patient's safety a priority, and with care and attention, this procedure will reward both patient and doctor.

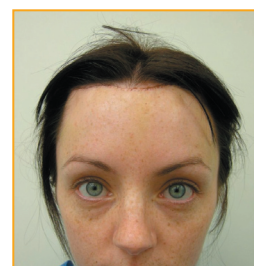


Figure 13. Appearance at 7 days, remove sutures.



Figure 14. Before and after hairline advancement.

## References

1. Nusbaum, B.P. Naturally occurring female hairline patterns. *Hair Transplant Forum Int'l.* 2012; 22(1):1, 7-8.
2. Ramirez, A.L., K.H. Ende, and S.S. Kabaker. Correction of the high female hairline. *Arch Facial Plast Surg.* 2009; 11:84-90. ♦