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How to assess scalp laxity

Parsa Mohebi, MD, Jae Pak, MD, William Rassman, MD *Los Angeles, California*

Laxity: What Is the Problem?

Assessment of scalp laxity prior to hair transplant procedures has been a clinical subjective evaluation that varies with each surgeon and each visit. Hair transplant surgeons have been traditionally assessing the laxity of the scalp with manual palpation of the donor area and by moving the scalp horizontally or vertically and estimating the scalp movement against the occipital bone. Measurements have been recorded with subjective terms such as very loose, moderately loose, average, moderately tight, and severely tight. With the exception of the well-known Mayer scale, which provides an estimation of the percentage of scalp elasticity, there have been no units of measurement available for assessing the scalp laxity. Thus, there are no standards for measurements of the scalp laxity to reassure the surgeon regarding his or her judgment.

Strip harvesting yields depend upon two parameters: average density of hair in the donor area, and surface area of excised strip. Larger transplant sessions require a longer and wider strip size. In larger hair transplant sessions, the height of the strip depends solely upon the laxity of the scalp. Removing wide strips will increase tension upon closing the wound. Higher wound tensions cause the following:

1. Difficulty closing the wound and wound dehiscence
2. Widening of the eventual donor scar
3. Wound ischemia and necrosis
4. Telogen effluvium of the surrounding skin

The patients who have a higher risk of donor wound complications include the following:

1. Patients with high ratio of demand to supply.
2. Those who have had repeated hair transplants with diminished scalp laxity after each surgery.
3. Patients with surgical scars on the scalp especially at or below the level of the projected new strip excision.
4. Patients who naturally have tight scalps.

Laxometer

The laxometer can provide a metric for measurement of the laxity of the donor wound before surgery when planning a procedure, and a variation of this same instrument can be used to estimate tension on the wound during the hair transplant while local anesthesia is applied and before strip removal.

Figure 1. Laxometer

Our clinical prototype was made of two pads that were able to have a good grip on the scalp. The laxometer consists of two coarse pads with a spread of about 5 cm (Figure 1). The lower pad is placed on the scalp skin just above the occipital bone after parting the hair in the area and the upper pad follows. The readings on the clinical instrument and its surgical counterpart were reproducible.

The first thing that came to mind after making the laxometer was to find an answer for one of our old questions: Can scalp exercise really improve the laxity of the scalp? We instructed a few patients to do scalp exercise and followed them on a monthly basis with laxometer measurements (Figure 2). All patients responded well to this treatment with significant improvement in scalp mobility. You can see the measured

Figure 2. Scalp exercise improves laxity.

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President's Message

Bessam K. Farjo, MD *Manchester, England*

By the time you read this, I will have handed over the ISHRS presidency to the safe hands of Kentucky's finest, Dr. Bill Parsley. It has indeed been a great privilege and honour to act as your president this past year.

I would like to thank Dr. Arthur Tykocinski for his dedication and commitment in chairing this year's Annual Scientific Meeting in Montréal. Arthur's involvement has also contributed to my aim of emphasising the international status of our Society by fully involving colleagues from around the world in this year's event, such as Drs. Alex Ginzburg and David Perez. The team was completed by Drs. Carlos Puig and Paul McAndrews as well as Kathryn Lawson (of the Gillespie Clinic). My sincere thanks goes to everyone.

The ISHRS has continued to grow rapidly and its achievements over the past year are testament to that fact. Under the guidance of Drs. Paul Cotterill and Bob Haber we have achieved ACCME accreditation with commendation. Several workshops have taken place across the world as well as our popular webinars, and we continue to develop opportunities for workshops in the U.S., Europe, and the Middle East. Of particular importance, we co-sponsored a regional workshop in South East Asia for the second successive year. Our first regional workshop in Europe clearly demonstrated the huge demand and potential for educational opportunities in this important region.

Our vision continues to be to establish the ISHRS as the leading resource and unbiased authority on hair loss treatment. Our strategic initiatives over the next 3 years will be to gain financial security; increase web- and media-based public awareness; increase the number of physician members; position the ISHRS as an integral aspect of emerging technologies; and, finally, to offer materials and/or resources for physicians to train new surgical assistants.

As medical professionals, we are not necessarily used to dealing with the media. However, it's something that can only be beneficial in our aim of raising awareness of hair loss solutions and the work of the ISHRS and its members. We may be unsure of the media, but the impact of news stories over the past few months—such as hair cell research, genetic screening, and robotics—is tangible. Stories of patients and their journey through the transplant process continue to spark interest, particularly high-profile personalities or stories of human interest such as those under the banner of OPERATION RESTORE. This is invaluable in raising the positive profile of hair transplantation and something that should be encouraged and harnessed.

Although the role of President has meant extra work and involvement in almost all ISHRS issues, I have enjoyed it tremendously but certainly now appreciate why one year is quite enough! I started in this field 15 years ago when I was about 30 and have attended every Annual Meeting since the first one in Dallas back in 1993. You can say I have grown up alongside our Society and I feel very proud of all its achievements.

Along the years I have been privileged to get to know you as colleagues, and lucky enough to be able to call many of you dear friends. Thank you all for your support and trust. Finally, thank you to the support of the ISHRS Executive Committee and Board of Governors, Victoria Ceh who makes it all tick, Kimberly, Jule, and the rest of the ad min team in Chicago.

Bessam Farjo, MD

Co-editors' Messages

Paco Jimenez, MD *Las Palmas, Spain*

In the designing of the hairline, we usually measure landmarks such as the mid frontal point and the frontotemporal junction, and most of us still rely on the "eyeball" method when drawing the hairline. It would be helpful to have tools to level the hairline and check for its symmetry. We have been fortunate to receive in the last month two articles that present different tools for aiding in hairline placement. The first article is by Drs. Ng, Pathomvanich, and colleagues from Thailand, who have developed a portable laser device. The second article is by Dr. Cole, who uses a template made of a transparent plastic film with vertical and horizontal scales. I think both tools are very useful and simple to operate, and I am sure that once you begin using either of them you will never go back to the "eyeball" method of drawing.

The laxometer, on this issue's cover, designed by Drs. Mohebi, Pak, and Rassman, was developed to objectively measure the laxity of the donor area. An interesting observation is that the laxometer clearly confirms the improvement in laxity following the so called "scalp exercise" for the donor area.

Dr. Ng and colleagues also present an unusual but real case that could happen to any of us, namely a patient who decides to have part of the grafts removed several days after the transplant. A year ago, Dr. Cooley published a similar case (*Hair Transplant Forum International* 2007; 17(5):178) in which minigrafts were removed using a 20 gauge needle to hook one edge of the graft and pull upwards. In the case presented here, Dr. Ng and colleagues removed follicular units 5 days after transplant. It is not as easy as simply grasping the graft and pulling it out, but involves what they call a "4-step approach," which they show in a detailed diagram.

Dr. Yamamoto from Japan writes on the controversial topic of the transection rate in FUE, demonstrating that what he calls the "completely transected graft rate" appears to be a useful indicator of the follicular transection rate.

In the basic science section, Dr. Nilofer Farjo brings us an interview with one of the most prominent researchers in our field, Dr. Valerie Randall. She is a world-renown expert on the influence of androgens on the hair follicle. We are very proud to have her in the list of Basic Science Contributors for the *Forum,* and we hope to enjoy her contributions in future issues.

When you read this issue of the *Forum,* the meeting in Montréal will be over. To those of you who presented talks, please consider sending those studies to our journal for publication. Remember that a written article always has much more impact than a 5-minute presentation. With your help, we will continue improving the quality of the *Forum,* the reference journal of hair restoration surgeons.

Paco Jimenez, MD

Bernard Nusbaum, MD *Coral Gables, Florida*

You are all aware of the dramatic evolution in hair restoration throughout the years. From the days of large round grafts, to donor strips, to follicular unit transplantation and FUE, the ISHRS has been the platform for innovators in our field to share their ideas so that colleagues can adapt to new methods and new technology. Since its inception in 1993, the Society has benefited not only its physician members, but, ultimately, our patients and the industry as a whole. For those new to the field, I encourage you to make use of your membership, learn as much as you can, and continue to get better. For those of us who have practiced hair restoration for many years, each transition results in dramatic improvements in our results and, if we are not careful, we could easily be lulled into complacency, look back and believe that the "new technique" of the time is "as good as it gets" or "good enough." The easy thing to do would be to get comfortable and perform the procedure at this "new" level and avoid change. We cannot become complacent, however, because the remarkable thing about our field is that innovations continue to develop at a rapid pace. If you practice hair restoration, you might think that you are maintaining your skill level at a horizontal plateau. In fact, however, you are either constantly refining and improving your techniques and you are "on the way up," or (even if you don't perceive it) you are actually on the decline and will be left behind. I encourage you to keep abreast of new developments in our field. Take advantage of the spirit of friendship and hospitality that the ISHRS provides and visit different clinics. Attend the meetings, read the *Forum,* and benefit from the vast array of educational offerings that our Society has to offer.

Bernard Nusbaum, MD

Amerinet and the ISHRS: A great member benefit

E. Antonio Mangubat, MD *Tukwila, Washington*

Last year at the business meeting in Las Vegas, I introduced a group-purchasing benefit that partners the ISHRS with Amerinet. Amerinet is a company that negotiates large discounts on behalf of its members. I became a member of Amerinet in late 2004 after calculating that I would reap at least a 16% discount in all of my office supplies. Considering that my office supplies constitute a hefty part of my surgery center expenses, it seemed like small risk. After the first partial year, I realized a 12% savings, and in the second full year, the savings were a whopping 42%. This certainly offsets the full price membership fees that I paid to Amerinet and far more.

I am surprised to find out that very few ISHRS members have taken advantage of this benefit. Not only do you get a discount on Amerinet fees, the ISHRS receives a royalty for each member from the ISHRS, and the savings on medical, surgical, drug, and even office supplies can be considerable. I cannot begin to tell you how much I think you are missing by not taking advantage of this opportunity. Below is a table of a few of my best negotiated expenses before and after Amerinet. These are actual numbers and actual savings. I believe every ISHRS member deserves to keep more income; please take another look at the ISHRS/Amerinet benefit. You'll wonder why you waited so long.

For a membership fee of $375 per quarter per location, ISHRS members in the United States can take advantage of the complete product and service agreements in each area.

PRODUCT	OLD PRICING	AMERINET	Saved
Needles	$ 8.05	$ 4.14	-48.57%
Syringes, 3cc	8.91	5.31	-40.40
Syringes, 5cc	16.78	9.39	-44.04
Syringes, TB	17.51	11.30	-35.47
Syringes, 10cc	18.12	9.71	-46.41
Syringes, 20cc	20.16	10.16	-49.60
Syringes, 60cc	40.53	17.30	-57.32
Staples 35W	112.34	67.09	-40.28
Envirocide 1gal.	26.14	14.87	-43.11
Cidex 1gal.	15.58	10.38	-33.38
Chlorexidine scrub brushes	23.44	14.28	-39.08
Surgeon's gloves	25.64	14.84	-42.12
Shoe covers	10.00	6.43	-35.70
Masks, tie strings	11.09	8.01	-27.77
Masks, ear loop	12.27	7.92	-35.45

PRODUCT	OLD PRICING	AMERINET	Saved
Sterile gowns	$ 77.46	$ 52.71	-31.95%
Mayo cover	46.51	28.66	-38.38
Table cover	52.76	34.68	-34.27
3/4 sheet	50.96	38.43	-24.59
Light handle covers	29.21	18.69	-36.02
Lap sponges	51.72	32.60	-36.97
Suction tubing	49.36	24.89	-49.57
4 × 4's	41.50	37.85	-8.80
Lactated Ringers 1ltr.	25.00	14.90	-40.40
Lactated Ringers 3ltr.	40.25	25.66	-36.25
Suture, 5-0 & 6-0 FAST	141.10	72.14	-48.87
Suture, 3-0 Vicryl 3/doz.	200.71	105.40	-47.49
Propofol 10mg/mL 20ML	289.50	79.39	-72.58
TOTAL	$1,462.60	$777.13	-46.87%

Interested in learning more?

Contact Emily Hughes, Regional Manager, Amerinet/HRS at 206-583-6516, toll-free at 800-842-6663, or e-mail Emily.Hughes@amerinet-gpo.com.

Or go to the ISHRS website at www.ishrs.org/members/amerinet.php.✧

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- ✓ Include all photos and figures referred to in your article as separate *attachments* in JPEG or TIFF format. Be sure to attach your files to your e-mail. Do *NOT* embed your files in the e-mail itself.
- ✓ An Author Consent Release Form must accompany your submission. The form can be obtained in the Members Only section of the website at www.ishrs.org.
- ✓ At the beginning of any article submitted for the *Forum*'s consideration, authors must disclose any financial or other commercial interest they possess in an instrument, pharmaceutical, cosmeceutical, or similar device referenced in, or otherwise potentially impacted by, the article.
- ✓ Trademarked names should not be used to refer to devices or techniques, when possible.

Submission deadlines:
October 5, November/December 2008
December 5, January/February 2009
February 5, March/April 2009

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Notes from the Editor Emeritus

Michael L. Beehner, MD *Saratoga Springs, New York*

Thoughts on entering our specialty

Whenever I see a newspaper ad for Lasik eye surgeries, it seems it is always accompanied by assurances to the reader that the doctor has performed over 10,000 procedures; and I always wonder: How did he or she ever notch the first couple hundred? Our specialty is very similar. Entering the specialty of hair restoration surgery and eventually becoming successful has a number of "Catch-22's." How do you get patients if you haven't done many procedures? How can you possibly hire (and train—the hardest part!) five assistants when the appointment book is mostly empty? How do you actually perform your first few transplant procedures when there are virtually no "hands-on," live patient opportunities in the clinical world as we know it now? It must seem to the aspiring newcomer like a very high and fast merry-go-round that's tough to get on board and ride.

From my vantage point on the ISHRS Board of Governors the past few years, I sense our Society is keenly aware of the problem and is trying hard to answer this need, but it is a difficult and complicated challenge. Later on I will list some of the ways the ISHRS is helping in this regard. In recalling my own entry into hair surgery and that of many of you I have talked with, some common denominators come to mind: First of all, a large percentage of us were actually patients before we were hair surgeons. We got "religion" the hard way and really believed! In my own case, after I had those first three sessions of 90 large grafts each in 1981-82, I was thrilled beyond measure to look into the mirror each morning and see hair framing my upper forehead. It had a profound effect on my self-image and I felt and acted 15 years younger. Having frizzy, multi-hued brown hair helped me camouflage the detectability of my transplants from that era. I also secretly discovered that committing the big "no-no" my wife forbade me to do—using a bar of Ivory soap as my shampoo of choice—helped increase the frizziness and fullness of my hair. So, seven years later, when I was looking for something to add to my practice and help me slow down a little from my busy family practice life, I recalled that I often had thought it would be neat to learn to do what was done to me. So I sought out someone to teach me how to perform hair surgery and in addition I sponged up everything I could read about the procedures. I am eternally grateful that the state of the art at the time was fairly primitive—all neatly summed up in O'Tar Norwood and Richard Shiell's wonderful 324-page text, Hair Transplant Surgery. If I were to fast forward my life 19 years and embark on the same journey now, I would instead find that there was a 1,000 page textbook with innumerable nuances and approaches to learn, and that I would need 3–6 assistants day one to help me move the typical 1,500-3,000 grafts most patients expected. I am pretty sure I would have found the whole thing a little daunting and may never have set forth.

Another common background feature that a great many of us shared is that we had some surgical background, many in dermatology, and others in Emergency Room, family practice, or one of the surgical specialties. I had a year of general surgery residency along with my family practice residency and always enjoyed doing procedures with my hands, so hair restoration surgery was a natural jump for me.

Perhaps the most important starting factor for many of our members was that they got their start by being recruited in the course of some serendipitous encounter by either a large national transplant group or by an individual hair surgeon for the purpose of helping staff their busy hair surgery offices. Many of my colleagues spent several years in such groups, often having to travel a good deal to cover the geographic needs of the business. For various reasons, often simply to be able to practice with more independence and make their own mark, they would leave the larger group and strike out on their own. Many individual, established hair surgeons, like myself, reach a point where they are busy and simply want another physician to share the load of the practice so that they can keep their staff fully employed and perhaps slow down a little themselves. In both of these instances, in which a newcomer either joins an existing group or solo practice, there is an inherent self-interest in the motivation of the party bringing on the new hair surgeon-to-be. The ISHRS Fellowship Training Program, which was started under the leadership of Dr. Dow Stough, and then enhanced by Dr. Carlos Puig a few years ago and continues now under Dr. Vance Elliott, has been active primarily with doctors who were seeking to add someone to their practice and who want to do it in a structured, more prestigious manner that would enhance the quality of the educational experience. I functioned in this capacity three years ago. It is a lot of work and sets a hair surgeon back quite a few dollars, but is worth it if the goal of training a future partner is realized.

One other very common background most of us share is that we had another medical career before we switched over to being a hair surgeon. I practiced family medicine full-time from 1976 to 1989, and then overlapped the two specialties for the next 4–5 years before devoting myself full-time to hair surgery. An exception would be the several colleagues I can think of, who had some exposure to hair surgery during their dermatology residencies or spent a year in fellowship training in either hair surgery or facial plastic surgery with an emphasis on hair, and were able to go right out and perform hair transplant surgery at the beginning of their practice years. But this is definitely the minority of our members today, with the cross-over docs far outnumbering them.

For most individuals who go into hair surgery, if you really sit down and talk to them about the early beginnings

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of their career, it's like talking with someone about the day they fell in love with their spouse. It was love at first sight! The creative aspect of what we do is intoxicating. In a very visible way you have the opportunity to totally change a person's self image and outlook on life!

So, putting together the obstacles of needing to have hands-on experience and then convince some patients to walk through your door, along with the fact that most of us make this switch mid-career while still practicing our initial primary specialty, what is the best way for us to help these physicians interested in becoming hair surgeons?

The Basics in Hair Restoration Surgery Course at the ISHRS Annual Scientific Meeting, the on-line teaching with instructional CD, and the various live surgery workshops—especially the wonderful Orlando one each spring—go a long ways toward introducing the newcomer. Reading the Unger-Shapiro text, *Hair Transplantation* (2004), and the similarly named Haber-Stough text, *Hair Transplantation* (2006), is a necessary start. Two new texts, edited by Drs. Marc Avram and Danny Rousso, respectively, will soon be available too. Joining the ISHRS, attending the annual meetings, and reading the *Forum* are additional great ways to stay current and keep your finger on the pulse of the specialty. The final, crucial component to this learning process is visiting as many doctors' offices as you possibly can, observing how each of them organizes their offices and staff, and, of course, how they perform the various steps of the hair transplant procedure. It's very hard for the host surgeon to offer much hands-on experience in this setting because our patients fully expect us and our trained staff to perform all the steps of their hair surgery. While it is true that you can view an individual surgeon operating at the live surgery workshops and on the live video screen at the annual meeting, still the best setting to view surgery is in the physician's own office. The big "line in the sand" that is hard to cross and still remains is the daunting challenge of getting hands-on experience. The ISHRS Fellowship route is an ideal way to go, but not many mid-career physicians, who have family and financial obligations, can afford to break away for a one-year fellowship. Having a group or individual take you under their wings and train you, whether in the formal fellowship structure or not, is obviously a great way to learn and quickly gain experience. The last entry method is to gradually transition over while continuing in your primary specialty. After many meetings, much reading, and many visits to various offices, you hopefully will find a small group of trusting patients willing to let you perform your early procedures, and then secure a hair surgeon who will let you bring your patient into his or her office where you perform the surgery under their supervision. Usually the host physician charges his usual fee for taking this time and trouble. The legal liability issues are the murkiest aspect to this arrangement, but in a situation in which the host physician knows of you through meetings and the obvious evidence of your serious interest in the specialty, this is usually not an obstacle. I would discourage anyone from recruiting relatives for this role, as you have to live with them for the rest of your life! If you do any work in your nearby VA Hospital, the bald patients from there are an ideal source of patients looking for an inexpensive hair transplant.

To the best of my knowledge, no one has a really good handle on whether the demand for hair surgery is increasing, on a plateau, or possibly even decreasing. It's probably safe to assume that being in an economic recession would tend to lessen demand. Do we need more hair surgeons? The answer in the next few years will most certainly be "yes." None of us are staying the same age and some members retire each year. The psychology of human nature would suggest that maybe it is a better idea to do your principal training and supervised-operating time in an office at least a few hundred miles away from where you intend to practice. In my own case, I went through the yellow pages of every city west of the Mississippi to note possible practices to visit and ended up in San Francisco. I think we've matured a great deal since those earlier, more competitive times, and most of us share the view of Dr. Tony Mangubat, our distinguished former president, who described hair surgery as an unlimited potential market that we've barely tapped, rather than a rigid sized pie that we cut up and keep getting smaller and smaller pieces as others enter the field. I always recall the story Bill Parcells told when he was asked on the first day of training camp with the New York Jets why he'd want to take over one of the sorriest franchises in professional sports. "Two guys are sent to Australia to sell shoes to the Aborigines," he said. "One calls his boss and says 'There's no opportunity here; the natives don't wear shoes. The other calls his boss and says 'There are a lot of opportunities here; these people don't have any shoes!'"✧

Scalp laxity

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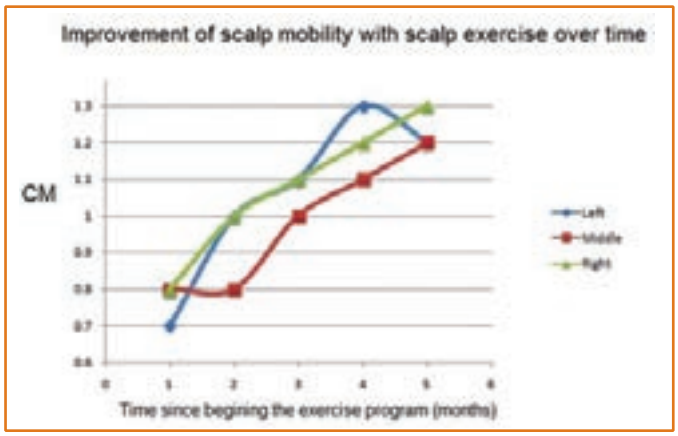

Figure 3. Measured mobility of the scalp skin (cm) over time with scalp exercise

laxity of the scalp in one of the patients who was compliant with the exercise and follow-up visits (Figure 3).

We have started to use the laxometer routinely on almost all patients; however, we continued to seek a method to decrease human error in measuring the laxity. Thus, we equipped the laxometer with a spring to provide a constant pulling force instead of the surgeon's hand pulling the pads. The two pads were attached to the skin with fixed needles (Figure 4) to eliminate slipping of the pads on scalp skin. Obviously, this method should be performed after applying the local anesthesia and before removing the strip. More studies are needed to compare the correlation between the two methods of laxometery to the closure tension of the surgical wound.

Figure 4. Intraoperative use of laxometer

Conclusion

The laxometer can determine the laxity (mobility) of the scalp accurately with reproducible measurements. It can be used prior to the time of surgery and during surgery, and the device is able to apply a numerical value on scalp laxity, augmenting the surgeon's clinical judgment. In patients with tight scalps in whom we recommend scalp exercise/massage, the laxometer can follow the change of laxity in the scalp.✧