

New Hair Restoration

Follicular Unit
Hair Transplants

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Acknowledgements:

My present level of understanding, insight and know how into the hair loss industry is due to the willingness of many talented members of the International Society of Hair Restoration Surgery (ISHRS) freely sharing their experience and knowledge with their colleagues.

This book reflects some of the key fundamental work developed and performed by them over the past two decades. I thank all those pioneers, capable path finder's who allowed me to combine most of their findings and conclusions which enabled me to make to this branch of medicine, a small contribution to the existing total knowledge. Hopefully this book will assist with the sharing of this information with the general public.

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Medical Disclaimer

The purpose of this book is to provide the public with general information on hair restoration. Information provided should not be used for medical diagnosis and/or treatment.



**Dr Jennifer Martinick displaying her Platinum Follicle Award
that indicates superior achievement in hair transplant surgery.**



Dr Martinick showing patient hair image with mirror.

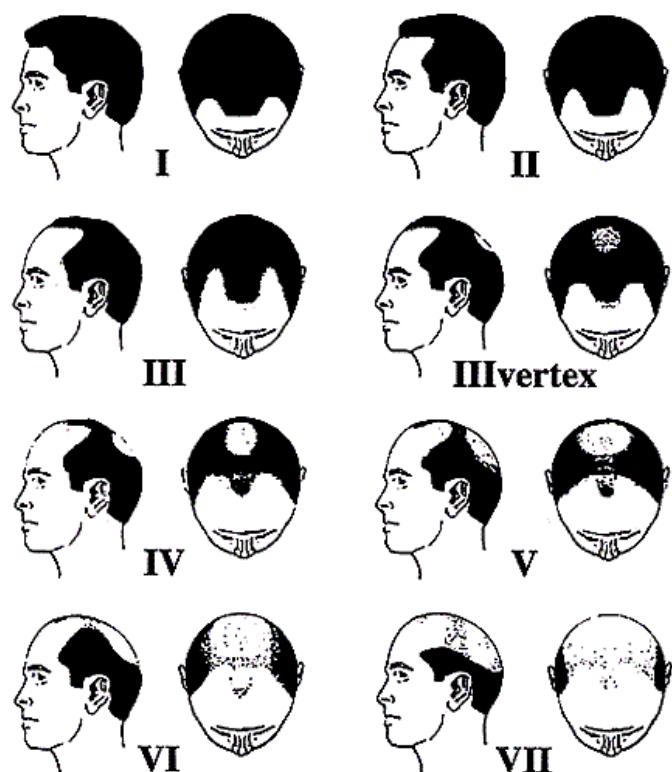


Sixth year medical student is assisting with ongoing research into improving hair transplanting techniques and outcomes.



The new hair line restoration is natural and undetectable following a 1000 graft follicular unit transplant.

Norwood's Classification of Male Pattern Alopecia





Powerful operating microscopes allow skilled technicians to see each individual follicle during graft preparation.

Table of Contents

1 <i>New Follicular Hair Transplant</i>	1
2 <i>Methods of Halting Hair Loss</i>	13
3 <i>Best Hair Transplant Surgery</i>	29
4 <i>Hair Restoration Consultation</i>	41
5 <i>The Medical Evaluation</i>	49
6 <i>Follicular Unit Extraction</i>	55
7 <i>Preparing for Surgery</i>	59
8 <i>Hair Restoration Procedure</i>	67
9 <i>Women's Hair Loss</i>	91
10 <i>Repairing Superseded Techniques</i>	101
11 <i>Eyebrows and Eyelashes</i>	105
12 <i>Summary</i>	107
13 <i>Hair Transplantation Q&A</i>	109
Glossary.....	115
Reference/Notes	123
Additional Information.....	125

1

New Follicular Hair Transplant

Advances in medical research, technology and surgical techniques have renewed public faith in medical hair restoration. Using the Multi-Therapy combination we now have the means to stop or reverse hair loss.

In addition, significant advances in Hair Transplant techniques can now offer completely natural and undetectable outcomes. This is called Follicular Unit Transplant (FUT) which is now offered as part of the Multi-Therapy approach. This is an exciting new solution that has given new life and excellent results to thousands of people.

When you experience hair loss, the resultant premature ageing may lead to lower self esteem. Each day your self-image is reflected in the mirror and the disparity may begin to cause concern. Most men and women instinctively have the desire to look and feel good, and a western culture model promotes a fresh, youthful look¹. Technological advances in medicine have improved the results of cosmetic surgery and have led to an increase in popular demand.

The Role of Surgical Hair Restoration

Surgical hair restoration (also known as hair transplantation) promotes re-growth of hair in areas affected by hair thinning and loss. Medical research² shows that not all hairs are created equal. Even at advanced stages of hair loss, most men retain a ring of hair around the sides and back of their heads. This hair is different genetically from hair located at the hairline and top of the scalp.

2 New Hair Restoration

In hair transplant surgery, doctors take, or ‘harvest’, permanent hair follicles from a strip of the scalp removed from the back of the head. The strip contains hundreds, usually thousands of grafts, each consisting of a few hairs that can be surgically placed for growth in otherwise bald spots. This hair transplanted to bald areas will grow as well as it did in the harvested ‘donor’ areas and will continue to grow permanently.

In order to stop and reverse the hair loss process, patients often require a Multi-Therapy approach. In these cases, doctors commonly prescribe one; two or all three United States Food and Drug Administration (FDA) approved medical therapies, Rogaine®, Propecia®, or the HairMax Laser-Comb®, as well as a transplant.



Immediately after surgery



Just one session of grafting

Hair Plugs Are Out Follicular Units Are In!

Unfortunately, when most people think of hair replacement, they visualize the artificial image of a doll's head. For many years transplants were performed using large groupings or "plugs" of hair (tufts of as many as thirty hairs) into a patient's frontal hairline and on top of the scalp. The result looked unnatural and was always easy to spot.



The "pluggy" transplant performed over a decade earlier shows the "corn row" appearance that was used in transplant surgery.

As surgical hair restoration has evolved, so have the outstanding results that skilled physicians can deliver to their patients. Follicular Unit Transplant is the new standard of hair replacement that allows surgeons to recreate the natural hairline. With this technique, surgeons can place Micro Grafts containing one to four hairs into the recipient sites to achieve a more natural appearance. Careful orientation of the follicles so that they follow the natural direction of the hair, and taking care to place them so they do not overlap or line up unnecessarily, helps to achieve maximum coverage. These directions are known as coronal versus sagittal placements.

4 New Hair Restoration



Note the individual hairs in what had been a balding head.

New Follicular Hair Transplant 5



**Not seeking a full head of hair, merely a pleasing, fuller hairline,
this patient achieved his desired look.**

6 New Hair Restoration



**Before and after
Follicular Unit
Transplant.**

New Follicular Hair Transplant 7



Patient before and immediately after surgery.



8 New Hair Restoration



Same patient six months after hair transplant surgery.

New Follicular Hair Transplant 9



The same patient twelve months after surgery.

The Newer Surgical Techniques Demand Skilled Surgeons

Older techniques and technology significantly hindered surgeons' abilities to give their hair transplant patients aesthetically natural-looking hairlines. The Follicular Unit Transplant technique opens the way to master the technology and fine art of hairline design known as the '*snail track*'. This new technique earns its name from the way it mimics the natural hair line irregularity, ruling out a sharply defined edge. It is also denser in some parts - a feature of youthful hairlines.

Aided by powerful microscopes and better surgical instrumentation, surgeons today have the tools to create remarkably natural hairline results for patients. The best hair restoration surgeons also possess the skills needed to design the micro-elements of the hairline at the transplant recipient site. This is where size of the site, angulation, orientation and spacing are specifically and artistically determined. These surgical and aesthetic skills ultimately determine how the hair will grow into outstanding, newly re-created hairlines.

A Brief Comparison of New and Old Surgical Methods

To appreciate the significance of the advances that have been made towards evolution in these marvellous modern procedures, here is a summary of the more popular older techniques:

Reduction - This surgical procedure removed bald skin from the top of the head, thereby reducing the size of area requiring transplanted hair. Scalp reductions peaked in popularity in the mid-1990's. Fewer of these procedures are being performed because of various complications. These include stretching back of the balding area, the potential for visible scarring with

New Follicular Hair Transplant 11

progressive hair loss, thinning of the donor area hair density and the popularity of new grafting techniques.

Flap Surgery – The main benefit of this procedure has been its ability to cover large areas quickly. However, it involves cutting out a section of the bald scalp and lifting off a flap of hair-bearing skin still attached at one end. This hair-bearing flap, connected to the original blood supply, is then moved into position and sewn into place. In addition to being painful, this procedure often produced severe scarring and an unnatural appearance due to abnormal orientation of hair growth. The recovery period was longer and patients experienced more discomfort with this procedure. In the hands of less experienced surgeons, it often produced poor results.

Mini Graft Hair Transplants – This method of hair transplantation was popular 10 to 15 years prior to Follicular Unit grafting and the follicular Micro Grafting techniques. It offered significant improvement over the old method of taking 10 to 15 hair “plugs” from the back of the head and inserting them into round holes in the bald scalp. As mentioned, these relatively large grafts were placed into large slits in the scalp with significant spacing between them. This technique replaced the even larger, unacceptable plugs of hair that were commonly used and represented an important step in the evolution that has led to the techniques performed today. In spite of the existence of the newer methods, there still are surgeons who continue to perform Mini Graft hair transplantation procedures.

12 New Hair Restoration

The Very Latest Method

There is no doubt that the new Follicular Unit Transplant offers the most advanced hair replacement in hair transplant surgery. It requires greater skill on the part of the surgeon and surgical team, as well as additional time to complete. In my experience, implanting hair follicles coronally (so that each individual hair can be seen) achieves greater coverage than hair follicles implanted sagittally (where the hairs lie on top of one another, giving the appearance of less hair). A Follicular Hair Transplant is far more attractive and with good surgical skill to give correct orientation, is impossible to distinguish from a person's natural hair growth on the remaining part of the scalp. For someone seeking attractive, natural-looking hair, this is the new procedure.

2

Methods of Halting Hair Loss

The Multi-Therapy approach requires a hair restoration surgeon who can demonstrate expertise using the latest proven approaches to hair restoration.

The Multi-Therapy Approach to Hair Restoration – Taking Control of Hair Loss

This consists of surgical grafts and FDA approved medication or therapy.

It is important to understand that surgical hair replacement without adjunctive medical therapy may not be adequate to provide the best results. There are only three FDA approved therapies for treatment of hair loss besides a surgical hair transplant:

(i) Minoxidil (Rogaine®) is a topical lotion applied to the scalp daily. Available over-the-counter in 2% or 5% solution, it is often only effective for approximately 2 years. Its exact mode of action is unknown, but it is thought to promote hair growth by increasing blood circulation locally.

(ii) Finasteride (Propecia®) is a tablet taken daily, and acts by inhibiting the conversion of testosterone to dihydrotestosterone (DHT), which is the cause of male pattern hair loss. Available only on prescription, it can not be taken by women.

14 New Hair Restoration

Propecia® slows hair loss and stimulates some new hair growth, and works more effectively on the crown and mid-scalp than the frontal area. It may be prescribed in addition to a transplant to prevent further loss.

(iii) The most recently approved treatment uses low level red laser light (655nm) which stimulates hair follicles. The size of a normal hairbrush, the HairMax LaserComb® is used twice a week. It improves the strength and appearance of hair as well as hair growth.

If a physician does not offer appropriate medical therapies or treatments in conjunction with surgery to stop the progression of future hair loss and to enhance the quality of the remaining hair, additional surgical transplant sessions may be required.

After medical evaluation and consultation with a new patient, your surgeon will determine the treatment plan most suitable for the individual. It must be safe, realistic and accomplish appropriate hair restoration objectives. This is the goal.

Many patients are amazed with the hair restoration results when the work is performed by a qualified, skilled hair surgeon. The Multi-Therapy approach is highly recommended by hair restoration surgeons who are in the forefront of their profession maximising results, patient care and comfort.

Find a Qualified Hair Restoration Surgeon

There are several thousand hair restoration surgeons worldwide who practise hair restoration. Only a small percentage practise full time hair transplantation. In Australia there are 13 full and part time doctors who conduct hair transplant surgery. In the United States, physicians who are licensed as medical doctors (MD and DO) are approved to perform surgical hair restoration **regardless** of any special training in this field. The

vast majority of hair restoration surgeons have also trained in dermatology, cosmetic and plastic surgery.

Within this highly specialised field, the leading surgeons bring outstanding education, training, skills and philosophy into their practices. Many of the top hair restoration practitioners are members of the *International Society of Hair Restoration Surgery (ISHRS)*, and, in Australia, the *Australasian Society of Hair Restoration Surgery (ASHRS)*.

To treat hair loss, it is critical to find a qualified hair restoration surgeon with expertise in the Multi-Therapy approach. They need to be experienced in the latest surgical techniques as outlined in these chapters.

One of the best ways to evaluate hair restoration surgeons is to meet and talk with several of the doctors' patients who have had hair transplants. As you interview each patient seek answers to these questions.

- How many surgical procedures have you undergone (and how long ago)?
- May I see pictures of how you looked before?
- How many grafts have been transplanted?
- Examine the hairline and donor site. (Have the patient comb the hair back and off of the hairline).
- What medical treatments and therapies have you tried and what are you currently using?
- Were you comfortable during the procedure?
- How satisfied are you with the results of your hair restoration? Did it meet your expectations?
- How accurate was the information the doctor presented regarding what would be required to meet your hair restoration objectives?
- How did you choose the doctor?
- How would you describe your overall experience?
- Did the doctor and the clinic deliver as promised?

16 New Hair Restoration

Do Your Homework

As you continue reading, you will become acquainted with the most widely accepted components in use by skilled hair surgeons who offer current Multi-Therapy approach to hair restoration. You will also be encouraged to further research each of these options before undergoing any hair restoration treatment.

In addition to reading the latest information written by respected hair restoration surgeons and authorities, you will find the following Internet websites to be reputable sources of current information:

- *International Society of Hair Restoration Surgery* (www.ishrs.org)
- *International Alliance of Hair Restoration Surgeons* (www.iahrs.org)
- Hair Loss Information – Balding Blog (www.baldingblog.com)
- Hair Loss Help (www.hairlosshelp.com)
- Hair Loss Info (www.hairlossinfo.com.au)

If you are interested in learning more about the specific medical therapies discussed in each of the following sections, read the FDA approved product literature for Rogaine®, Propecia® and HairMax LaserComb® that is available on their websites:

- www.rogaine.com
- www.propecia.com
- www.lasercomb.net

A word of caution: There are thousands of websites, message boards and chat rooms that promote unreliable and unproven advice and remedies for hair growth. Don't be misled.

Another prospective medical therapy is Dutasteride. This drug is still in clinical trials for use in treatment of hair loss and awaits FDA approval.

Make Sure the Hair Loss Treatment is FDA- Approved

There are many so-called hair loss “remedies” on the market. Their various claims include the use of all-natural substances and nothing short of miraculous hair growth. Such products often offer a “money-back guarantee” as part of their radio, television, newspaper or Internet pitch. If it sounds too good to be true, then it probably is.

Although some of the products advertised may thicken hair to some degree, none have passed rigid FDA testing. Generally such products are ineffective in treating hair loss. You may even lose more of your valuable hair, time and money, waiting for these products to bear results.

If you suffer from hair loss and want to try non-surgical hair restoration treatments first, make sure you research proven methods.

Rogaine® (Minoxidil 5% solution) and Propecia® (Finasteride 1 mg) are the only medications that have passed FDA testing and allow each to claim their effectiveness in the treatment of hair loss. When you use Rogaine® and Propecia® together, as part of a Multi-Therapy treatment plan, these medications enable your hair transplant to gain greater hair density.

In February 2007 the FDA approved the HairMax LaserComb, a medical device for the promotion of hair growth. 93% of the participants in the six month trial³ had an increase in the number of terminal (thick) hairs. Over 2500 research papers are published on lasers and no serious adverse events have been reported.

Rogaine® Topical Solution (Minoxidil)

Rogaine was first administered internally to patients who were suffering severe high blood pressure. As a side effect of the drug, it was discovered that patients grew hair on various parts of the body. Some patients who applied the 2% solution directly to thinning areas of the scalp found that the fine hairs grew longer and thicker⁴.

Minoxidil is currently produced under the trade name of Rogaine® Topical Solution and various other names. The medication's exact mechanism of action is unknown. It appears to stimulate the hair follicles' active growth (anagen phase), causing the hairs to thicken and grow longer. Minoxidil is helpful in slowing down the rate of hair loss in approximately 70% to 75% of patients, and about one in two patients actually experiences hair re-growth.

Rogaine® Topical Solution is available over-the-counter (without a prescription) in both 2% and 5% concentrations. To be effective, the solution should be applied to the scalp once or twice daily. The recommendation is to shampoo and towel-dry your hair before applying the Rogaine® solution. It is also suggested that you use a dropper applicator to spread the solution over the entire top of the scalp and allow it to absorb into the skin where it can do its work.

You need to understand that it will take at least two to four months before you will notice less hair falling out, and six to seven months to see hair re-growth. Usually, this re-growth will be fine, short (vellus) hairs. Rogaine® must be used continually, as prescribed, over the long term in order to maintain its beneficial effects. If you stop using the medication, the hair loss will recommence.

The main side effects of Rogaine®, which occur in approximately 2% of patients, are skin itching, scaling and

redness. Many of these cases can use a propylene glycol free Minoxidil solution which may alleviate this.

Propecia® (Finasteride)

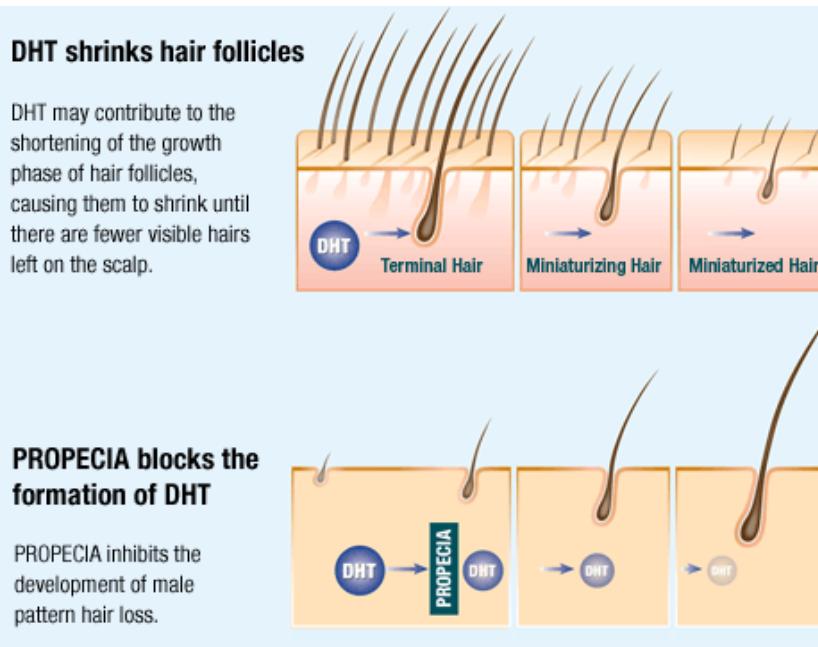
Propecia has been approved by the FDA as a remedy for hair growth and for stopping hair loss.

Propecia significantly reduces DHT⁵, a key cause of hair loss, by inhibiting the formation of DHT in your scalp. Lowering DHT appears to inhibit the further shrinking of affected hair follicles. DHT is a substance in the body that can shrink the hair follicle until it no longer produces visible hair. Propecia blocks the formation of DHT and, in this way, appears to interrupt the development of male pattern hair loss. Propecia helps reduce further hair loss and re-grow visible hair.

Propecia is made by MERCK & Co., Inc. Throughout the world many hair restoration surgeons recommend it for their male patients who are distressed with hair loss. Hair surgeons often prescribed Propecia after a hair transplant procedure.

DHT is shown in the following chart. Note that it shows graphically what occurs when you simply let nature take hold of your hair growth, if you are genetically inclined to have thin hair or baldness.

20 New Hair Restoration



Reference MERCK & Co., Inc.

Alternative Treatments

Beware of Product Claims

As mentioned, be wary of products claiming to grow hair with all natural ingredients and no side effects. Here are some cautions about two popular ingredients:

There are several products on the market that contain Minoxidil. Their manufacturers often disguise the identity of this ingredient by listing it under another name. While some of these products may yield results to some degree (because they contain Minoxidil), typically such products cost considerably more than Minoxidil in its generic form.

There are also many products that claim to contain Saw Palmetto or other “natural” DHT blockers. DHT causes both hair loss and benign enlargement of the prostate gland, an organ in men that enlarges with age and can cause urinary problems. Clinical studies have shown that Saw Palmetto improves the urinary symptoms but does not act by lowering DHT. Nor does it lower prostate-specific antigen (PSA) or reduce the size of the prostate. Most hair specialists do not recommend the use of the various products containing Saw Palmetto.

A hair system is a term for what is commonly known as a wig or hairpiece. Hair systems are constructed from human or synthetic hair fibres and are attached to the head in a variety of ways, including:

- Glue bonding
- Weaving into your existing hair
- Various types of clips, taping or suction devices

Many hairpieces are left attached to the scalp for three to six weeks at a time before they are removed, cleaned and reattached. The three most frequent complaints heard from pa-

22 New Hair Restoration

tients who have worn hairpieces say they are generally uncomfortable, inconvenient and maintenance is expensive.

While hair systems remain a popular camouflage technique for hair loss sufferers, be sure to do your homework before you actually make a financial commitment to begin using any system.

Low Level Laser Therapy

One of the latest innovations in medical technology is Low Level Laser Therapy (LLLT). Low level lasers are referred to as "cold" lasers because they do not release energy in the form of heat. The light wavelength emitted from a low level laser actually repairs tissues that have impaired cellular metabolism by stimulating blood circulation and encouraging regeneration of normal, healthy tissues.

During the 1960's and 1970's researchers used low level lasers to evaluate their potential bio-stimulating effects on living tissues. In a surprise finding during experiments on patients with leg ulcers, doctors observed that the hair follicles surrounding the area being treated by the low level laser grew new hair.

Laser light appears to stimulate micro-circulation, decrease inflammation and improve cellular metabolism and protein synthesis. Furthermore, European studies suggest that LLLT increases blood and lymph circulation at the hair roots and stimulates follicular cells, which may cause hair to grow thicker and stronger.

Based on two modalities designed to treat hair restoration patients, the Luce System LDS 100 System® and the new FDA approved HairMax LaserComb®, LLLT seems to have had a noticeably positive effect on the quality of hair growth with both surgical and non-surgical patients. LLLT can be used as a healing accelerator for post-operative surgical hair

restoration patients and many have found this therapy to aid the healing process.

Multi-Therapy

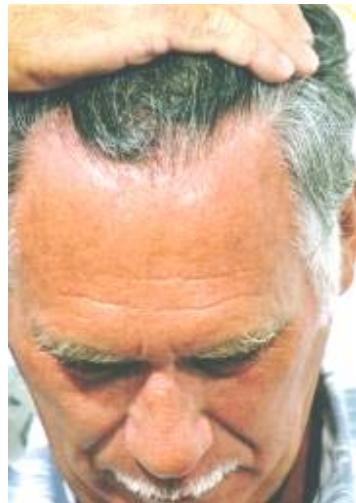
Hair transplant surgery is an integral component of the Multi-Therapy approach to hair restoration. It is the only permanent solution for hair loss and is likely to remain so.

The following chapter examines the current surgical technique called Follicular Unit Transplantation (FUT).

24 New Hair Restoration



Through hair restoration, this actor was able to achieve his goal of more youthful roles in film and on stage.



This man wanted his hair line restored by filling in temples with 300 grafts on each side.

26 New Hair Restoration



This man received 1500 grafts to restore his front 1/3 hair loss.





This young man regained his confidence after two procedures: 2100 grafts and 18 months later 1500 grafts.



3

Best Hair Transplant Surgery

After decades spent refining Follicular Unit Transplant surgical techniques, hair restoration surgeons now have the ability to transplant hair matching the way it naturally grows on the scalp. This is a significant achievement. While several earlier methods succeeded in permanently redistributing hair from one part of the scalp to another, many of these transplants were not aesthetically pleasing. The older methods could not produce a natural-looking hairline.

How Hair Grows

Scalp hair - at the top, sides and back of the head - grows in groupings of individual hairs. When viewed using 5-10 power magnification, we can see clusters of one to four shafts of hair growing from each follicle in the skin. We call these groupings "follicular units".

Typically, approximately 30% of scalp hair follicles have one hair, 40% have two hairs and 30% of follicles have three to four hairs, but this varies from person to person.

There is an average of one follicular unit per one square millimetre. As each follicular unit contains an average of 2 hairs, it is therefore possible to yield one thousand follicular unit grafts containing approximately two thousand hairs from a donor strip of scalp measuring one centimetre wide by ten centimetres long. With follicular unit grafting,

30 New Hair Restoration

doctors surgically harvest hair from the donor site keeping each unit intact.

Dissecting and Trimming Follicular Units

After the hair follicles are harvested from the donor site, the resulting ‘donor strip’ is maintained in a saline solution while the surgical team dissects the individual units. This process is explained in greater detail later.

As part of this process, it is essential to trim away the excess epidermal and fatty tissue surrounding each follicle. This is a critical surgical step for two reasons. Firstly, each follicular unit must fit into the very small incision that forms the foundation of the new hairline. Secondly, trimming this tissue eliminates the occurrence of the unnatural pits and gaps between each grouping of transplanted hair.

These wide spaces contribute to the “pluggy” look in patients who have undergone hair transplants performed by surgeons using older, less sophisticated surgical techniques.

Great precision is required for the dissecting and trimming in order to preserve each precious follicle harvested for transplant and to prevent any damage that could compromise the viability of the newly transplanted hair. Powerful stereoscopic operating microscopes enable surgeons and skilled technicians to clearly see each individual follicle within the unit being dissected, especially if the patient has very fine, blonde or white hair.

Transplanting Follicular Units into the New Hairline

Following dissection and trimming, the follicular unit groupings of one, two, three or four hairs are individually and meticulously implanted into each recipient site in the new hairline. As each tiny cluster of hair grows with very little skin between the follicles, the patient will reap the benefit of a dramatically improved surgical hair restoration technique.

In a ‘mixed grafting’ technique, single hairs are used in the very front three or four irregular rows of the hair line. Two-hair follicles are positioned immediately behind these rows, followed by the three and four-hair follicles. The surgeon determines correct angulation, direction and orientation. With this gradual increase in density coupled with an irregular hairline, the surgeon can mimic nature, ensuring the outcome is completely natural hence the surgical intervention is undetectable.

How Many Follicular Unit Grafting Sessions Are Needed?

For many patients, only two or three graft sessions may be necessary to yield a completely satisfactory result. Indeed, one transplant session is often sufficient for patients with limited hair and modest restoration goals.

Follicular Unit Grafting and Mixed Grafting

Follicular unit grafting and mixed grafting hair transplantation techniques offer patients superior hair restoration results. Patients no longer need to settle for the limited “thinning look.”

Ideally, all patients want to achieve a result that is thick and natural. In reality, patients’ insufficient donor hair and/or financial resources usually restrict the surgeon’s ability to accomplish this “ultimate result”. You may need to consider the

32 New Hair Restoration

trade-offs and then determine which surgical hair restoration option is best for you, considering your age, extent of your hair loss, remaining ‘donor’ hair and your expectations.

Most patients elect to have the mixed grafting technique performed. This enables them to enjoy the benefits of the most natural looking hairline, composed of an irregular hairline and variations in density and fuller, thicker hair (using the larger grafts) for coverage behind it.

Former Hair Restoration Patients Often Seek to Improve Upon Earlier Results

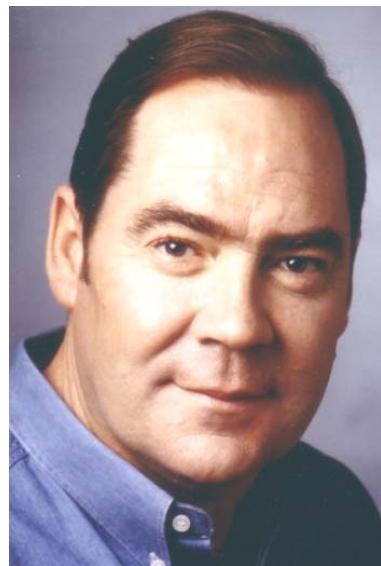
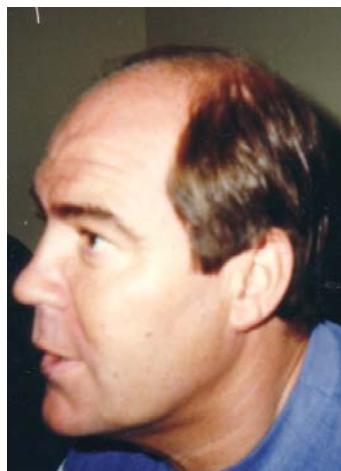
A highly skilled transplant surgeon can also treat men and women who had surgical hair restoration procedures several years ago. Recent transplant patients also seek to improve on previous restoration results.

In many of these cases, while the patients’ surgeries succeeded in achieving permanent hair growth on regions of the scalp that had experienced hair thinning and loss, they failed to look natural. Unfortunately, even though a surgeon may possess the technical knowledge to perform the new hair grafting techniques, he or she may lack the requisite design skills to create a truly natural-looking hairline. This all-too-common problem helps to highlight the need to do your homework before choosing your surgeon.



Follicular and mixed grafting techniques offer an undetectable, natural outcome for Alex.

34 New Hair Restoration



Bob had 2 procedures totalling 3,500 grafts – says “Nobody knows I’ve had these transplants”.



By the time he turned 32, he had lost most of his hair on top of his head. The surgeon harvested the donor area, extracting 2000 grafts in two sessions that resulted in a much more pleasing look.

36 New Hair Restoration



Robert is a computer programmer who wanted a permanent, maintenance-free restoration. In two sessions of 3550 grafts, he achieved his goal.



Greg, in his late 20s, wanted a more youthful appearance. He felt that he was too young to have such bald areas on his scalp. He got the results he wanted with two sessions of 3300 grafts.



Len regained his youthful appearance after 3100 grafts.

Poor Results in the Past

Sadly, there are men and women who have spent years (and large sums of money) in pursuit of their hair restoration goals and have not succeeded. Hair loss is a dynamic process. While the hair from follicles harvested from regions that are not susceptible to male pattern baldness and will grow permanently where they are transplanted, it does not alter the fate of the genetically predisposed hair around it. Unless these hair restoration patients follow a course of medical therapy (Propecia® Rogaine® and/or HairMax LaserComb®) as prescribed by their doctor or hair restoration consultant, they will continue to lose the surrounding non-transplanted hair.

In order to achieve your objective of a natural-looking hair restoration with enough density to give you adequate coverage, I strongly encourage you to find a skilled surgeon who incorporates the Multi-Therapy approach to treat hair loss. A consultation with your surgeon should ensure that your expectations are in line with what is realistic and medically achievable.

The Ideal Hair Restoration Solution for Many

In summary, more and more hair restoration surgeons are using follicular unit and follicular Micro Grafting techniques to recreate and refine hairlines. By keeping the size of the hair grafts as trimmed as possible and the units of hair intact, the hair surgeon can create a truly natural-looking appearance.

These advanced surgical hair restoration methods are well suited to treat both men and women who require limited hair grafting to achieve adequate scalp coverage. For the majority of these surgical candidates, the new follicular unit grafting hair transplant methods present an ideal solution.

However, it is important to understand that there are still limits to the degree of density that can be regained through

surgical hair transplantation, or any medical hair restoration treatment. While significant improvement in hair density can be realised through surgery (especially when patients follow a prescribed regimen of FDA approved medical therapies as well), the density will not equal the level a patient had prior to the onset of hair thinning.

The next chapter offers a review of important elements of the surgical consultation.

For more information visit the website for the International Society of Hair Restoration Surgery – www.ishrs.com – and their articles on risk factors in hair restoration surgery and frequently asked questions:

<http://www.ishrs.org/surgical/surgical-complications.htm>
<http://www.ishrs.org/mediacenter/media-faq.htm>

40 New Hair Restoration

4

Hair Restoration Consultation

Before undergoing any medical or surgical procedure, it is always advisable to research your options and seek several professional opinions. In this chapter, we will examine the consultation phase of the hair restoration process. We also offer valuable guidelines, which we hope you will use to take control of your hair restoration from the very beginning.

Preparing for the Consultation

The primary objectives of this book are to inform you about new medical and surgical hair restoration options and to empower you as a patient. It has been my experience that the most satisfied hair restoration patients are those who invest the necessary time and effort to prepare for the first consultation.

Visit the internet sites of reputable sources for information about hair restoration. Once you have done this preliminary research, you may also use these resources to obtain the names of respected hair restoration surgeons in your area. Of course, an excellent means of finding a hair restoration surgeon is by personal referral. It helps to know a satisfied patient or to ask your general practitioner or hairdresser for the name of a well-respected specialist.

Consultations May Vary

Over the years, there have been compelling infomercials on television about hair restoration. In the majority of these cases, high-pressure sales tactics were commonly employed by those advertisers in order to persuade prospective clients to come in for a “consultation”, where they met with a non-medical (sales) representative who tries to sell a surgical procedure or hair system. This is classified as a “sales consultation”, not a medical consultation.

Be cautious of anyone who tries to entice you with a special discount or offer when you sign a contract and/or make a deposit that day—**ESPECIALLY IF YOU HAVE NOT MET WITH THE DOCTOR OR TRAINED MEDICAL HAIR SPECIALIST.** This is not how reputable hair restoration surgeons’ practise. If you encounter this type of situation when you go in for a medical consultation, beware and seek the services of another doctor, even if you have to travel some distance.

Establishing the Doctor-Patient Relationship

The consultation is an opportunity for much more than a smile and a handshake. It enables doctor and patient to get acquainted on several levels. The initial meeting allows the doctor to assess where a prospective patient is in terms of physical hair loss, his area of greatest concern, what treatments may have already been tried, how the hair loss impacts the individual on an emotional level, and more.

While talking with the hair restoration patient, the doctor is also studying such characteristics as personality, facial features and aspects of the existing hairline—what features need to be accentuated and what should be minimised. At this stage, the doctor is already planning how he or she will place different groupings of hairs in different patterns to best suit

that individual. Taking time for these details enhances the doctor's ability to formulate a superior treatment plan and hairline design for the patient.

From a patient's perspective, the consultation is your time to learn as much as you can about the doctor, the practice and your hair restoration.

Now is the Time to Determine Objectives and Discuss Expectations

The consultation serves both patient and doctor as you work together to determine your hair restoration objectives, review various medical and surgical solutions, and obtain a clear understanding of what you can realistically expect as a final result.

During your initial visit, you need to know the doctor's professional assessment of your condition, including an accurate determination of where you are according to the Norwood or Ludwig scales of male/female pattern baldness; what you can realistically gain in terms of density; the doctor's detailed treatment plan and fee for services.

This discussion must also set appropriate expectations in terms of the actual numbers of sessions and grafts required to achieve your hair restoration objectives. You may discover that you need more sessions than you had anticipated. For example, the fact that you have dark, straight hair and light skin may require more work. Or your donor area may be insufficient and this will limit the doctor's ability to achieve the desired density.

Additional Considerations

Here is a partial list of questions to ask your doctor:

- Please tell me about your medical training and background.

44 New Hair Restoration

- How did you get interested in the field of hair restoration?
- How long have you been performing hair restoration surgery?
- How many surgical procedures do you perform in a day? Many factors determine how many surgeries a doctor can perform. One or two is reasonable.
- Do you offer a Multi-Therapy approach to your patients?
- Do you use Follicular Unit Grafting, Micro Grafting and Mixed Grafting surgical techniques?
- How much of your practice is dedicated to medical and surgical hair restoration?
- What will your role be in my surgery? Will you actually make all of the incisions and place each graft? In many clinics, the doctor only removes the strip and is NOT involved in the important design, or in the graft placement.
- What training and experience does each member of your medical and surgical team possess?
- How often do you and your staff go for continuing education related to medical and surgical hair restoration?
- Are you an active member of any professional hair restoration organizations? Which ones?
- Please give me the names and contact information of patients I can call as referees.
- Please show me your patients' Before and After photos.

Guidelines for Evaluating Before and After Photographs

- For each photo, ask the name of the surgeon who performed the surgical procedure on the patient.
- Can you see the patient's hairline in each photo?

Hair Restoration Consultation 45

The most detectable part of a hair transplant is the 2-3 cms. You need to see the hairline in order to determine if the doctor used follicular unit grafts.

- Study the hairlines.
- Do the hairlines curve around near the temples?
- Are hairlines straight across or staggered?
- Do the hairlines appear natural and random?
- Ask yourself, “Does the patient’s hairline look right?”
You do not need to be an expert. You can certainly judge whether or not a hairline looks natural.
- Clinical Before and After photos should not be retouched.
- Not all hairlines should be created equal. You need to see that the doctor can produce a variety of hairlines that are appropriate to the age, hair characteristics and facial structure of each individual.
- Watch for the “high and wide” hairline.
- Be sure you see photos taken from different angles. The photos provided should enable you to evaluate coverage, density and appearance from multiple angles.
- Ask for an overview of each patient’s treatment plan.
- What was the surgical treatment plan?
- How many grafts did the patient receive?
- What size grafts?
- Had the patient had any previous hair restoration surgery? If so, how many procedures?
- Was any adjunctive therapy used? (e.g. medical, laser/phototherapy, nutritional supplements)
- Was the patient on Propecia?
- Did the patient use Minoxidil?
- How many months after the procedure were the photos taken?
- Which doctor performed the surgery shown in each photo? Unless the question is asked, it may not be disclosed that different doctors performed surgeries

46 New Hair Restoration

on different patients showcased in the practice's portfolio. In fact, an individual patient may have had multiple procedures which may have been performed by different doctors.

Many practitioners bring their unique medical background, philosophy and preferred approach to their work and hair restoration practice. The consultation and medical evaluation process varies between doctors.

In the next chapter, there will be an elaboration on the medical evaluation, which may be conducted at the same visit as the consultation and also review common pre-operative protocols and considerations.

Hair Restoration Consultation 47



Excellent hair characteristics achieved a remarkable result with 3,000 follicular units.

48 New Hair Restoration

5

The Medical Evaluation

Hair transplantation is a cosmetic surgical procedure. Although it is considered minor surgery and typically performed under local anaesthetic in an outpatient facility, every patient must undergo a thorough medical evaluation before surgery can take place.

The Medical Evaluation Is Not the Same As a Consultation

The consultation is an essential part of a patient's information gathering and decision-making process. Generally, once the patient has chosen a doctor and hair restoration solution, the medical evaluation follows as the next step. During the patient's medical evaluation, the doctor must gather relevant patient information in order to make critical decisions for the patient's course of treatment and medical care.

Remember, whether you are still in the decision-making stage or you are actually in the midst of a surgical procedure, it is always appropriate to ask questions. If you do not understand an answer, be sure to say so. Clear communication between doctor, patient and the entire medical team is vital to ensure a safe, satisfying and successful outcome.

Completing the Medical Questionnaire

In most cases, you will be asked to complete a written medical questionnaire prior to your medical evaluation. In many offices, doctors request this information at the initial consultation.

Not only is it in your best interest, it is critical that you answer each question as accurately and completely as possible. Your doctor will rely on your answers in order to make decisions that will affect your hair restoration. Your doctor must be aware of any specific underlying medical conditions, diseases and issues you may have—past and present.

Requesting Medical Clearance

Prior to undergoing a surgical procedure, the hair restoration surgeon may require medical clearance from your general practitioner.

A hair restoration surgeon will request your general practitioner's clearance for surgery to ensure your medical history, physical examination findings and appropriate diagnostic test and lab results indicate that it is medically safe to proceed. Your general practitioner may require that you submit to an electrocardiogram (ECG).

The results of recent laboratory blood tests may be necessary. These include FBC with platelet count, prothrombin time, Hepatitis and HIV testing. If you have undergone this blood-work within the past year, your doctor may allow the lab to send a copy of your results to the office without requiring new tests to be performed.

Upon reviewing patient consent, the hair restoration surgeon may ask that your general practitioner disclose any prescribed medications as well as the doctor's medical opinion regarding the status of your medical conditions, including allergies, cardiovascular disease, hypertension, blood-clotting,

infectious disease status, substance abuse and psychiatric disorders.

It is important to remember that there are certain medical conditions and issues which may prohibit a patient from undergoing surgical hair restoration or taking medications such as Propecia®.

Medical Evaluation by the Hair Restoration Surgeon

The medical questionnaire and evaluation give both doctor and patient the opportunity to discuss allergies, medication, special considerations and accommodations needing to be addressed.

In addition to questions and answers related to a patient's medical history, I evaluate each patient's hair loss history.

Hair Loss History

The hair surgeon needs to know as much as possible about each patient's hair loss in order to determine the best hair restoration solution and treatment plan appropriate for the individual.

- When did you begin to lose your hair?
- Has your hair loss been gradual or sudden?
- What is your family history of hair loss? (Who suffered from hair loss: mother, father, maternal grandparents, paternal grandparents, brothers, sisters, cousins?).
- How are you coping with your hair loss? How does your hair loss affect you on a daily basis?
- How have you addressed your hair loss? (Have you tried medication such as Propecia® or Rogaine®,

52 New Hair Restoration

supplements, special shampoos or lotions, camouflaging products?)

- Have you worn a toupee, wig or hair system?
- What has not worked for you and why?
- Have you ever undergone a surgical hair restoration?
- Do you lead an active lifestyle (e.g. Do you swim, play tennis, work out, etc.)?
- What are your hair restoration objectives? Do you want to achieve minimum or maximum coverage? What about a permanent solution? Is there a way to stop hair from falling out? Do you want to grow more hair? Can an unnatural-looking transplant be improved?
- Where are your priorities regarding coverage? Front hairline, mid-scalp, crown, entire head?

While these are basic questions, it is a mistake to assume your doctor will know what you consider to be important. You have to tell the doctor what you want! You need to clearly communicate with your doctor and the medical hair restoration team.

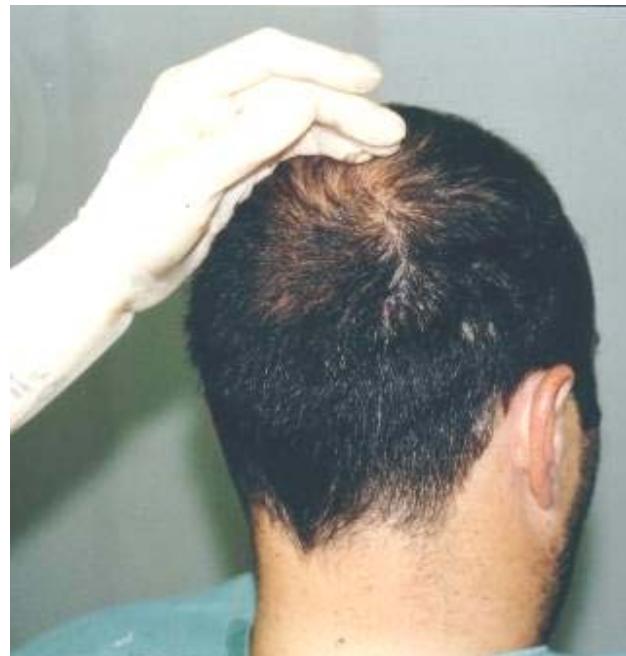
The Hair and Scalp Examination

Hair and scalp examinations vary with each doctor. For the purposes of this book, I will explain the more common elements of this part of the medical evaluation.

Hair restoration surgeons must evaluate the patient's hair colour, texture and type in order to develop the surgical plan. Examination of the hair follicles and hair density under magnification allows more accurate assessment of the number of grafts and sessions required to achieve the restoration objectives.

In cases where there has been previous surgery, the donor area will need to be examined to determine how many grafts may be extracted from the remaining tissue and the extent and condition of the scarring.

Previous transplant work should be closely examined to determine the ideal approach to achieve the best surgical outcome.



Hair and scalp examination to determine the qualities of the donor hair.

54 New Hair Restoration

6

Follicular Unit Extraction

Follicular Unit Extraction (FUE)—also referred to as the “FOX” technique—enables surgeons to minimise scarring in the donor area of people who have very thin hair. For some people, the idea of having a linear scar, however narrow, is unacceptable. This surgical technique provides another option for harvesting or “extracting” from the scalp to provide donor hair.

With Follicular Unit Extraction, surgeons are able to extract single follicular units (groupings of 1, 2 or 3 hairs) individually from the donor area without a scalpel. Follicular Unit Extraction is a less invasive procedure than the strip harvesting method normally used in surgical hair transplantation and also means the patient will not require stitches.

At the moment there are few doctors performing Follicular Unit Extraction worldwide. While some hair restoration surgeons are doing 14-hour procedures and harvesting 1500 grafts using the FUE method, the same result can also be achieved over multiple sessions. The surgeon and staff may perform a second procedure within days of the patient’s first FUE session. In some cases, the doctor may do the right side of the donor area on one day and the left or centre area the following day.

56 New Hair Restoration

Advantages and Disadvantages

There are several post-operative benefits associated with Follicular Unit Extraction. Patients walk out of the procedure with the follicular units implanted as they would with a traditional procedure, but there are no stitches in the donor areas and therefore less discomfort. The tiny circular incisions become nearly invisible within a matter of days.

While the benefits of Follicular Unit Extraction are quite appealing to many prospective hair restoration patients, it is a tedious process for the surgeon and the surgical team because it requires much more time to harvest the same numbers of grafts compared with the strip method. Currently, most qualified surgeons are able to harvest between 500 – 700 grafts within a five to six hour period using the FUE method. As the individual grafts are harvested ‘blind’ the likelihood of graft transection is high. Studies⁶ suggest that graft mortality could be as high as 35%, as well as many multi-hair follicles being harvested as single hairs. This means that the total hair yield could be as little as 20% of what is possible using strip grafting!

This procedure is also still cost prohibitive for many patients. The time and cost required for a Follicular Unit Extraction procedure that yields 500 – 600 grafts is approximately the same as that currently required to yield 1700 – 2000 grafts using the strip method.

Stay Focused on Finding the Right Surgeon

It is very important for patients to understand the importance of choosing the right surgeon for a satisfactory outcome. Final hairline design results are dependent on the skill and artistic abilities of the surgeon performing the procedure. People often make the mistake of concentrating too much on how the doctor will extract the grafts and forget the basic rules that apply to artistic hairline design. Therefore it is critical that prospective patients evaluate a surgeon's proven expertise using the Follicular Unit Extraction technique in addition to the doctor's demonstrated artistry recreating undetectable, natural-looking hairlines.

Are You a Candidate for Follicular Unit Extraction?

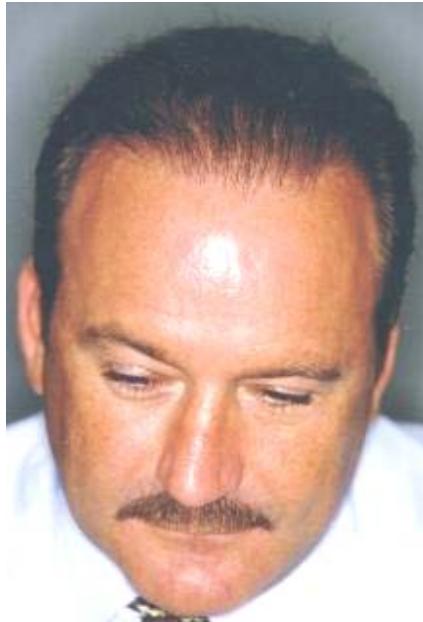
Here are a few questions for you to consider:

- How many grafts will be needed to get the job done? (If you need too many grafts, the procedure may be time and cost prohibitive).
- How long is the hair on the back of your scalp?
- Why waste your time and money on this procedure if your hair will easily cover a scar the donor area?
- Are you on treatments to stop the progression of your hair loss? If you are not, and your hair loss continues, you will need to continually fill in the areas where you are losing hair.

If you are considering a hair transplant or a Follicular Unit Extraction procedure, you should discuss the options and their suitability for you with a hair restoration surgeon or consultant.

58 New Hair Restoration

For more information visit the website for the International Society of Hair Restoration Surgery - www.ishrs.com - and their article on follicular unit extraction:
<http://www.ishrs.org/articles/hair-follicular-units.htm>



Enhanced hairline.

7

Preparing for Surgery

Once you and your doctor have determined that you are a candidate for surgical hair restoration, it is normal to look forward to the day of surgery with both anticipation and some apprehension.

The best way to overcome anxiety is to be prepared. Take time to learn about each of the various hair restoration options available to you. Be sure to call and meet with some of the patients who have undergone surgical procedures with the doctor you are considering to perform your hair restoration surgery.

By learning about hair restoration, you will be more confident as you prepare for surgery.

Listening to Your Doctor and Following Instructions is in Your Best Interest

Usually during or immediately following the medical evaluation the surgeon or consultant will review all of the necessary pre-operation instructions with the patient. On the following pages are some of the common guidelines used by doctors to acquaint you with important considerations regarding hair restoration surgery.

The importance of listening to your doctor's instructions and following the pre and post-operation guidelines you will be given cannot be emphasized strongly enough.

60 New Hair Restoration

The following section is not intended to replace the medical advice or instructions given by your surgeon or hair transplant consultant. It is not an exhaustive list, but it will serve as a review of the general guidelines patients need to follow prior to undergoing hair restoration surgery.

Complete and Send Results of Required Lab Work to Your Doctor

Prior to surgery, as we mentioned earlier, lab work may need to be completed. Some surgeons offer lab services on the premises of their facilities. Others will ask the patient to visit their GP or refer patients to reputable medical laboratories nearby.

It is important to provide any medical information and test results required by the surgeon to enable him or her to make important medical decisions and to ensure the quality and safety of your medical care.

In the Month Prior to Surgery

It is suggested that patients allow hair to grow around the donor area, at the back of the head from where hair for transplant will be harvested, for approximately four weeks if possible. Longer hair will help to conceal the surgical incision required to harvest the donor strip of scalp.

In the Two Weeks Prior to Surgery

It is essential to avoid being sun burnt in the two weeks prior to surgery. Your surgeon will also advise you to avoid vigorous exercise, including running or lifting weights, for the week preceding surgery. Such activity can lead to increased bleeding during surgery.

If you use a laser comb, you may be advised to cease using it before the surgery and for a short time afterwards.

Medications and Supplements

It is important to inform your hair restoration surgeon about every vitamin, nutritional supplement, over-the-counter medication and prescription drug you currently take. Your doctor must also know if you are using any illicit or recreational drugs, e.g. marijuana, cocaine, “club drugs,” and so forth. This is vital information to share with your doctor because he or she must be prepared to address potential drug interactions and make critical decisions relating to your surgery to ensure your safety, comfort and healing.

Your surgeon will instruct you to stop taking substances that thin the blood in the three days prior to surgery. Some of the common items to avoid include aspirin and products containing aspirin, non-steroidal anti-inflammatory drugs such as Ibuprofen® and Naproxyn®, Vitamin E and multiple vitamins which contain Vitamin E, Ginseng, Ginko Biloba and Garlic pills. Tylenol and other Paracetamol-based drugs are usually permitted.

If you are on any prescribed medications you must inform the surgeon of these and confirm whether the drugs should be continued or temporarily stopped prior to the surgery.

Alcohol and Nicotine

Alcohol or nicotine may cause unnecessary problems during and after the operation.

While it is always advisable to limit alcohol consumption, you will be asked not to drink alcoholic beverages for 48 hours prior to surgery.

Smokers and non-smokers must avoid or minimise nicotine and second-hand smoke for 48 hours prior to surgery. Nicotine is found in tobacco products including cigarettes, cigars, pipe and chewing tobacco, Nicorette® gum and prescription patches.

Poor growth post operatively has been reported in heavy smokers and those with severe sun damage.

62 New Hair Restoration

Minoxidil and Hair Products

If you are using Rogaine® (Minoxidil) some surgeons advise patients to discontinue its use three days prior to surgery. It is not necessary to stop the use of Propecia®.

Hair colour and/or permanent wave (perm) processes must be done no later than two days before surgery. Some doctors recommend this be done one to two weeks prior to surgery. Patients may begin colouring/permitting their hair again two weeks after their surgical procedure.

Procedure Confirmation

It should be standard procedure for your surgeon's office to call and confirm your surgical appointment. If not, be sure to confirm your surgery a few days before your scheduled procedure.

Transport

Because a mild sedative and local anesthetic are used during surgery, you will not be able to drive yourself home following your surgical procedure, or for 48 hours afterwards. It is therefore necessary to arrange transport to and from the clinic. The clinic will be able to call you a taxi if you do not have a private lift.

Patients living more than a 90-minute drive from the surgical facility should arrange for overnight accommodations nearby. In most cases, the clinic office will be happy to provide recommendations for hotels in the vicinity.

The Day of Surgery

On the evening before or on the morning of your hair transplant procedure, shampoo and condition your hair. Do not use any other hair products such as hairspray, mousse or hair gel.

Wear a shirt that unbuttons completely down the front. Do not wear any garment with a close-fitting neck that would be difficult to put on or remove over your head. Wear comfortable clothes, as you will be seated for several hours. Bring a clean hat

such as a baseball cap with you that you can wear afterwards. A close-fitting hat such as a beanie is not suitable.

Before arriving at your surgeon's clinic, eat a light meal and take prescribed medications as normal. It is important to have an adequate blood sugar level and enough food in your stomach to absorb your medication. You may also be given a light snack during the procedure to maintain your blood sugar levels.

This advice may seem contrary to what has been directed before by other surgeries. This is because hair transplantation is minor surgery, so only a local anesthetic is administered. Patients are required to fast only before undergoing surgeries that require general anesthesia.

You may also be asked to avoid coffee, tea and any other beverages or foods containing caffeine. Caffeine, like nicotine, is a stimulant.

Finally, arrive promptly at the requested time to settle any outstanding payment and sign the surgery consent form. Most surgical hair restoration practices require an initial deposit and payment of the balance to be paid on the day of surgery.

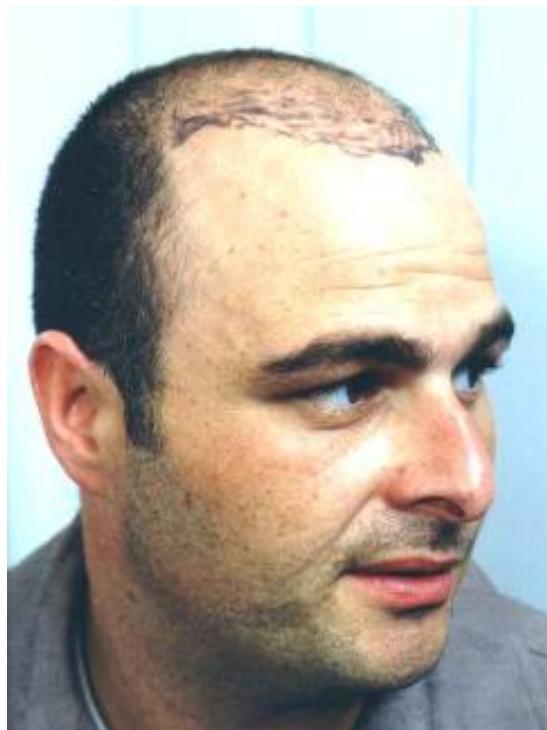
Be Comfortable and Prepared

Following the suggested guidelines outlined throughout this chapter will give you added peace of mind and ensure a safer and more comfortable surgery.

Most patients feel confident with their decision to undergo this procedure when they have a better understanding of what to expect.

In Chapter 8, we will describe the micro-follicular unit transplant method of surgical hair restoration in detail.

64 New Hair Restoration



Patient prior to surgery, with hairline and extent of recipient area marked with washable pen.



Planning the Transplant to suit individual patient.

66 New Hair Restoration

8

Hair Restoration Procedure

Hair transplant procedure is permanent.

Once the new hair grows there is no need for special care or maintenance; the transplanted hair will continue to grow naturally. Under normal conditions the transplanted hair will grow and appear as normal with the rest of the hair. Since hair transplantation is the harvesting of healthy donor hair from the body (back of head, side of head, chest, back) and implanted in the scalp, or in other areas where you may wish to have hair growth, it will grow and fill in bald areas.

Anaesthesia and Medication

When you arrive at the clinic, you will be given a gown and medication before we begin the transplant procedure. Be sure to use the bathroom before the procedure.

I will reconfirm the surgical plan and mark the area for treatment directly on your scalp in consultation with you. I offer intravenous sedation, antibiotics and medication to reduce pain and swelling. In preparation of donor and recipient sites on your scalp, a staff member applies antiseptic to the site. Sedation is then given. The area is numbed with injections of anaesthetic, which you do not feel as you are sleeping.



Patient in theatre immediately before surgery. Markings in green pen show the extent of recipient area.

After an injection of local anaesthetic there is generally no discomfort during the entire procedure. You will drift in and out of sleep during the procedure. Should there be any minor discomfort the surgeon will administer additional medication. All you need to do is relax and dream about all that new hair!

The Donor Strip to be Harvested

Before the donor strip is removed, the area is measured and the hair in the designated region clipped short, local anaesthetic numbs the area before the donor strip is removed.

The wound is usually closed using a trichophytic method that is, one edge of the wound is trimmed away with the other edge overlapping to allow the hairs near the edge of the wound to grow through the scar. The benefit is that it produces undetectable scars in most patients.

Hair Restoration Procedure 69

A double layer closure with two types of suture material creates the best approximation of the wound edges and causes less pain in the healing phase. The non-dissolving sutures are removed after 10 to 14 days while the dissolvable sutures absorb over 3 to 4 weeks.

Many individual factors can influence healing and the long term appearance of surgical scars. People with connective tissue diseases, keloid production, hypertrophic scarring and naturally tight scalps are more prone to scarring.

Post operative care is important. Minimizing strenuous activities and limiting movement of the head and neck for the first few weeks will allow for more effective healing.

The scalp tissue is maintained in chilled saline solution while grafts are being prepared by a team of highly trained technicians. The hairs are cut very carefully into their natural grouping of one to four hair follicles to ensure optimum growth and survival of the grafts. The preparation and placement of the grafts is extremely labour intensive with a procedure of 1500 grafts taking a team of 5 to 6 people up to 4 or 5 hours. It is essential to have a dedicated highly skilled team of technicians assisting in the surgery.

70 New Hair Restoration



The upper photo shows a normal closure while the lower photo demonstrates the ‘invisible’ scar achievable with *trichophytic closure*. These photos are of the same procedure on the same patient where each half of the donor closure was treated by the two different methods.

Follicular Units

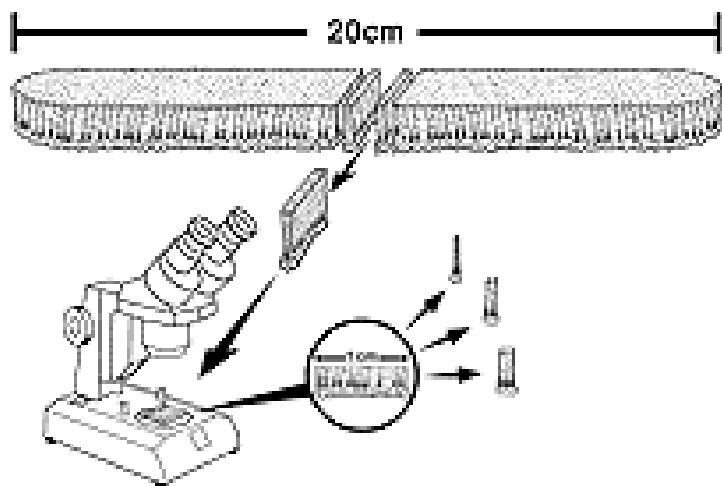
As you can see in the photo here hair follicles or follicular units tend to cluster in two or more units; these are seen as natural clusters of hair follicles. During the process of harvesting, the follicular units are dissected in a sterile, small lab by highly trained technicians with a high survival rate when placed on a tray ready to be placed in the scalp or other site. Most follicular unit Micro Grafts measure 1/2mm to 1 mm across, smaller than a grain of rice.



This shows naturally occurring follicular clusters of 1, 2, 3, and 4 hairs. It is from clusters such as these that follicles are removed and placed where needed for new growth.

Hours may pass between the time donor grafts are removed from the back of the head to the time they are implanted in the scalp. The donor tissue and individual grafts are kept moist at a cool 4-5°C until they are implanted in the scalp.

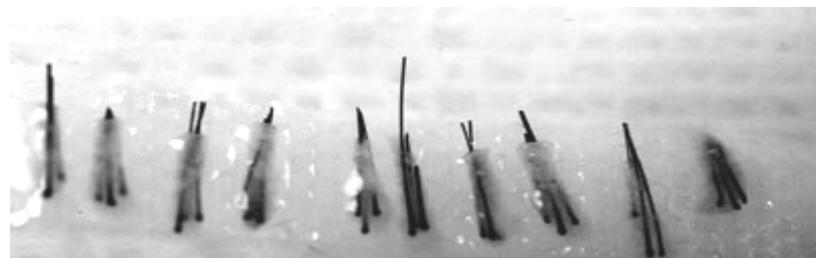
72 New Hair Restoration



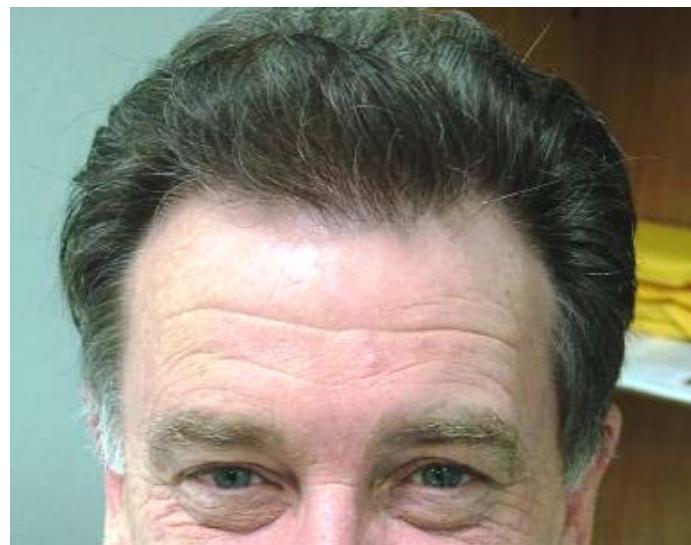
Note how each section of the strip is removed and dissected into 1, 2, and 3 follicular units.

The purpose of using single follicular units is to obtain a natural look. For the hairline, I use single follicular units. These single units are the best options for the hairline. For density purposes, I prefer to use the larger follicular units for the coverage of the rest of the area. The goal in a hair transplant is the combined result of an undetectable hairline and added density for the other areas of the scalp.

Hair Restoration Procedure 73



Follicular units.



Use of single follicular units and a “Snail Track” hairline resulted in this natural looking hairline.

Recipient Site

After the harvesting of the follicular units and during the dissection of hair follicles, I review the markings to be certain that they are drawn to allow for the best natural appearance, meaning, that the new grafts will grow out in the most natural way possible. This has to do with the angle of placing the grafts to achieve a similar pattern where hair once grew. The angle at which the grafts are placed is crucial to achieve a similar pattern to where hair once grew. It is critically important that careful attention is paid to graft placement to ensure that no damage takes place to existing hair follicles and correct spacing between each graft is achieved.

Whilst the individual grafts that have been dissected under the microscope are completed, I make incisions in the scalp to accept the Micro Grafts. The slits made as the recipient sites will determine the pattern and direction of hair growth. This is a critical step. I will make small slits in the marked scalp with a slender flat-bladed surgical instrument developed specifically for this purpose. The small slits allow grafts to be placed between growing hairs and transplanted hairs. They do this with less risk of damage to the adjacent hairs, thereby increasing hair density.

Both the length and the depth of the slits are important for the hair transplant. The microcirculation is just beneath the hair follicle; if the incision is too deep this can compromise hair growth. It is essential to minimise trauma to the surrounding tissue by tumescing or puffing out the recipient area with saline.

The older graft technique required greater spacing between the grafts for proper blood flow in order for the larger grafts to grow properly. This created a less dense appearance and often resulted in a tufted (toothbrush like) impression.

Dense Packing

This is a skill of placing the follicular units close together to ensure a natural result in a single pass. For example, the transplanting of a hair line requires dense packing in order to achieve a natural look with no gaps should be evident. The amount of follicular units to be placed may vary depending on certain factors such as hair shaft quality, ethnic origin, hair characteristics, hair colour, curls and existing hair density.

Mega-sessions

A Mega-session can only be performed when a patient has a high density donor hair available for strip harvesting at the back or sides of the head. The patient has to have appropriate skin laxity.

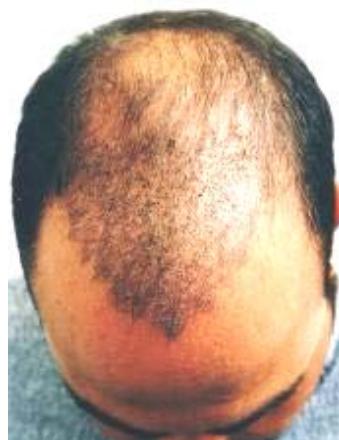
We consider a mega-session to be more than 1,500 grafts implanted in the scalp in a single session. A super mega-session involves more than 2,500 grafts. These mega-sessions will take six or more hours to perform and require a team of highly trained technicians to work efficiently at a rapid speed ensuring quality control of all follicular units required for immediate implantation. At all times the patients interest must come first which includes the minimization of trauma. Hence, speed and accuracy is paramount, to achieve an optimum outcome.

The technicians supporting the mega-sessions consist of a placer, sliverer and an expert cutter, often more than one of each.

76 New Hair Restoration



Patient immediately after transplantation of 2200 grafts.



Same patient two days later.

Placing Individual Grafts

The graft placement phase of the procedure could require more than two hours. The amount of grafts required is pre-determined by the patient and the surgeon prior to procedure.

In the various parts of the scalp, hair grows at different angles. This is a part of your pre-determined hair characteristics. My task is to mimic nature. I place the transplanted hair in the appropriate position, correct angle, direction and orientation to give a natural undetectable and pleasing appearance. Replicating your own individual hair characteristics is the hallmark of an excellent hair transplant. Other attributes I have to pay attention to are the spacing of each individual follicle, the depth of the incision and your unique hair pattern. Your transplanted hair will need to fall in line with your neighbouring hairs to establish a natural flow, symmetry and appearance.

In nature, in order to optimise coverage, the hair's direction is always coronal. The incisions for the hairs are made at right angles to the direction of growth. If this pattern of hair transplant is followed your hair will flow in a natural, easy-to-manage fashion. This is where the surgeon's observation skills, artistic flair and technical competence come to the fore.

78 New Hair Restoration



The angles at which the hairs grow vary on different parts of the scalp. The correct angle of the incision for the recipient site is essential to achieve proper flow.

To achieve a satisfactory and pleasing result the surgeon will work through any existing hair. There is usually no need to trim the existing hair, which will cover the short transplanted follicles.

Optimum Density

There are several factors to consider in order to achieve an optimum long term outcome. Since hair loss is continuous throughout life, hair suitable for transplanting is a limited resource and individual's expectations vary as they age; the surgeon has to include all of these unknowns to anticipate the patient's long term needs. The patient's present expectation of density will change over the years. Optimum density is influenced by the existing extent of hair loss, future hair loss, colour, hair characteristics, contrast between skin and hair, along with the number of future sessions that may be required to achieve the optimum benefits of grafting.

The chart below indicates an approximate total Number of Follicular Unit Grafts required to make a complete restoration (subject to patient's hair characteristics)

<u>Norwood Class</u>	<u>Follicular Units</u>	<u>Total Units with Crown</u>
III	800-1000+	---
III Vertex	800-1000+	1100-1300+
IIIa	1300-1600+	---
IV	1100-1400+	1500-1800+
IVa	1700-2100+	---
V	1500-1800+	1900-2400+
Va	2000-2400+	---
VI	2000-2400+	2400+
VII	2000-2400+	---

80 New Hair Restoration



Eyebrow transplant to camouflage previous scars.



Sideburn reconstruction after facelift to hide scars.

Face and Body Hair Placement

Hair can be transplanted to almost anywhere on the face and body. Most often it is the balding scalp where patients seek follicular hair restoration, but there are those who may have a need for eyelashes, eyebrows, sideburns, whiskers, pubic regions and other locations of the body. The follicular units will grow in any of these locations. Injury to the body due to an

Hair Restoration Procedure 81

accident such as burns, cuts and skin damage are special cases where a restoration of hair may be needed. These special areas require skills on the part of the surgeon and the aim is to achieve the best possible results wherever there is need for hair replacement.

Most often hair is harvested from the scalp in the donor region. It will typically grow as normal hair would on the head. The hair taken from the scalp usually requires monthly trimming to maintain a natural appearance.



Scar before and one year after one session of grafts.

Scars

It is possible to remedy the effects of scarring on the scalp. There are various types of scars; atrophic, thick (hypertrophic) or keloid (genetically thickened scars). A mature scar comprises dense, non stretch collagen bundles which allow only poor hair growth. To encourage good hair growth of hair when transplanted, I have developed a technique that allows for a more predictable growth.

82 New Hair Restoration



Brow lift scar and one year after one session of grafts.



Hair Restoration Procedure 83



Burns treated with one session.



One year after revision.

Immediately following Surgery

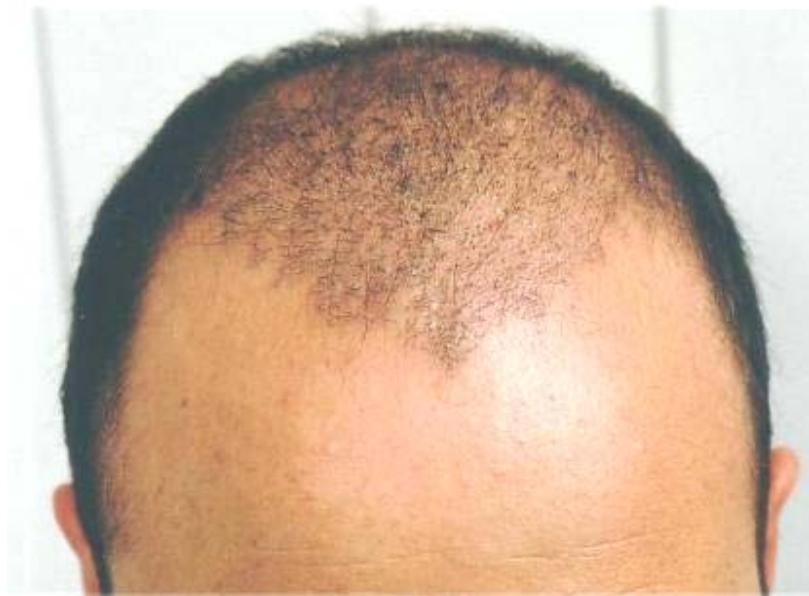
Following the procedure when the sutures are in place, a staff member will clean the donor area and inspect the results, at this point you would be encouraged to ask questions. Healing time begins at that point and could take up to 7 days depending on the individual. Before you depart the surgery the sutured area will be wrapped with a sterile bandage. The following day the bandages will be removed by the patient and a visit to the clinic is not required. Most patients do not need bandages on the recipient site. Photos are taken and the patient may go home on advice of the surgeon and staff.

After Surgery Appearance

Follicular unit procedures typically result in a slightly unnatural look immediately following the surgery.

Crusts form from dried blood and individual patients heal at different rates. The crusts may last for a few days after the procedure and it is important not to allow the recipient area to get wet during this time. After three days the scalp can be gently washed and the grafts will become practically unnoticeable. Patients often wear a hat or a cap during this time. Usually patients choose to take a few days off work, until the grafts are no longer evident.

Hair Restoration Procedure 85



Patient 7 days after surgery with a few scabs in hair

86 New Hair Restoration



The same patient after 3 and 6 months.



Permanent Loss

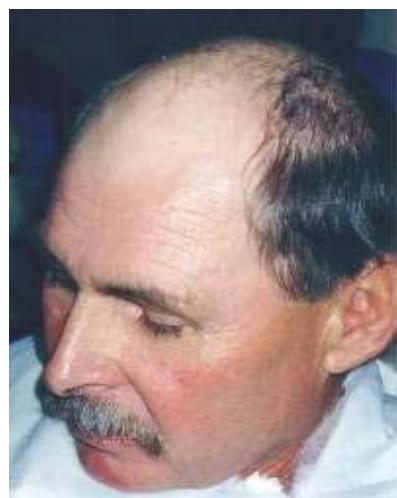
Transplanting hair includes a risk of permanent loss of some or all of the transplanted donor follicles. Typically the yield of transplanted grafts is greater than 90% and often approaches 100%. Lower yields can occur, especially if a scalp infection occurs and is not properly treated, or in "massive mega-sessions" involving thousands of grafts in a single session, blood supply is compromised.

About two weeks after surgery the transplanted hair will fall out. This is normal. The follicles, transplanted into the scalp, remain. The follicles will grow a new hair in the following few months.

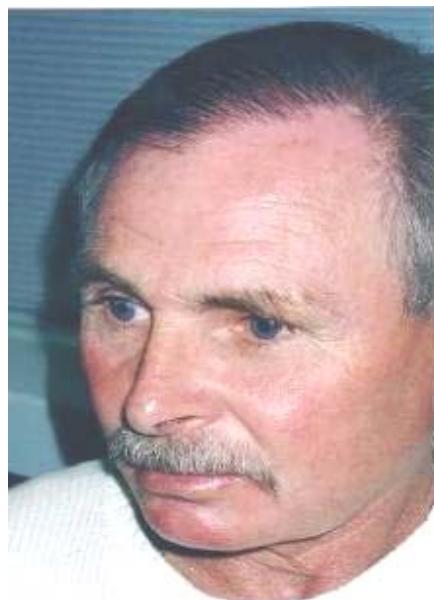


With the application of Propecia™ and Follicular Unit Transplant, this 38-year-old male achieved acceptable results.

88 New Hair Restoration



**Dennis, a 55- year- old pa-
tient wanted to transit from
wig to hair. He had an ex-
cellent donor area. After 2
sessions of 2500 and 900
graft transplant, natural
hair appearance was
achieved.**



Hair Restoration Procedure 89



Forty-five year-old man with a wonderful head of hair compared with months earlier. He had an abundance of hair on the back of his head that was harvested and transplanted to the sparsely covered frontal part of his head.

90 New Hair Restoration



John had 1500 grafts to enhance hairline and mid scalp.

9

Women's Hair Loss

Hair loss in women is less common than in men but can have a far greater effect on self esteem and confidence. Female hair loss is also more widespread than realised, because women will go to great lengths to disguise any bald patches or general thinning.

Hair loss in women can be due to genetic factors. This is called androgenic alopecia (or female pattern hair loss – FPHL), and can be noticed at any age from puberty to 40 years of age. Up to 50% of women will be affected by hair loss due to genetic factors in their lifetime.

However hair loss in women can also be caused by a variety of other factors including hormonal imbalances or changes, dietary deficiencies, stress, illnesses or some medications such as anti-cancer drugs, hair styling and chemical hair treatments. It can also be triggered by events in a woman's life, such as menopause, child birth, a trauma or major operation.

Any women affected by hair loss, whether short or long term, diffuse thinning or bald patches, should be assured that they are not alone, and treatment is often possible. Depending on the cause, a hair restoration specialist can recommend treatments to reverse the hair loss, and relieve some of

the associated social anxiety. Hair loss is a medical condition, and a woman suffering hair loss should seek a medical opinion and medical treatment. If left untreated, hair loss can progress.

Psychological Effects and Coping with Hair Loss

The psychological effects of hair loss in women should never be underestimated or disregarded. Due to social and cultural expectations, hair loss can be more distressing for a woman than for a man. Bountiful hair is seen as integral to a woman's sexual attractiveness and femininity. While hair loss is generally regarded as normal in men, women are more likely to be concerned and anxious about the ageing effect of thinning hair.

There are various different causes of hair loss in women. The correct diagnosis is required before a suitable treatment can be recommended. Dr Marty Sawaya, a dermatologist and specialist in hair loss, explains "The emotional impact for women with thinning hair is tremendous. One of the major roles of the doctor is to help women understand the various reasons⁷ for hair loss, helping them to focus on realistic treatment options and expectations to optimise treatment outcomes."

Stages of Pattern Hair Loss in Women

Recent evidence suggests that female pattern hair loss is a different inherited disease from pattern hair loss seen in men. Female pattern hair loss shows a complex inheritance, so the distribution and degree of hair loss among women in a family is not as predictable as that in men.

In women there is often generalised diffuse thinning over the entire scalp. Hair loss can also be localised, leading to

a mosaic of patchy loss, or loss along the central parting on the top of the head.

Ludwig developed a classification system for pattern hair loss in women, in which Stage I is described as thinning hair on the central scalp, Stage II is thinning hair and greater patches of scalp hair loss and Stage III shows male-pattern hair loss at the front scalp to mid-scalp. It is extremely rare to see advanced hair loss in women.

It can also be triggered by events in a woman's life, such as menopause, child birth, a trauma or major operation.



With Stage II hair loss, this woman initially wore a wig. The wig being uncomfortable, she decided on a permanent solution. After a hair transplant of 2500 grafts, she is pleased with the results of this decision.

What Causes Hair Loss in Women?

Hereditary pattern hair loss, or androgenic alopecia, is less common in women than in men. Early diagnosis of female pattern hair loss can be difficult because hair loss in women can be caused by many other factors, such as illness or hormonal changes. For this reason, a doctor or hair restoration specialist will ask for medical history, any possible contributing factors including pregnancies or onset of menopause and order a set of blood tests.

94 New Hair Restoration



Irregular hairline rectified by a small transplant.

The blood tests will include a full blood count (FBC), iron (Se Ferritin), thyroid stimulating hormone (TSH), blood sugar level (BSL), follicle stimulating hormone (FSH), estradiol (E2) and erythrocyte sedimentation rate (ESR), a non-specific screening for various diseases. The results of these tests will allow your doctor or hair restoration specialist to determine if the hair loss could be due to nutritional, hormonal or stress factors.

The doctor will also ask how long the hair loss has been occurring and whether other women in the family have similar loss. Whether the hair is breaking or falling out at the

Women's Hair Loss 95

roots and if the hair loss is patchy or generalised thinning across the scalp can also help diagnose the cause.

Hair loss in patches can be due to alopecia areata, which affects around 2% of women. The exact cause of this is unknown, but it is thought to be hereditary or an auto-immune condition.

If excessive hair comes away during brushing, this could be due to loose anagen syndrome, in which healthy, growing hairs are not held firmly in the follicles and are easily combed out. This condition is most often seen in blonde haired children. Shedding over the entire scalp is a condition called telogen effluvium. In this, an excessive number of hairs are shed simultaneously. This can be a long term chronic condition, or sometimes acute. A stressful event such as a high fever, a severe dietary deficiency or severe blood loss can cause acute diffuse shedding.

Hair can also be pulled out if the hair is usually worn in tight braids or a tight ponytail. The continual tension pulling on the hair leads to traction alopecia, where the hair is permanently lost from the affected follicles.

If someone compulsively pulls or plucks their hair, this can lead to irregular bald patches. This condition is called trichotillomania. The compulsive behaviour may be entirely unconscious, but can still lead to permanent hair loss.

Irregular bald patches can also be a result of scarring from wounds or burns, or from medical treatment such as chemotherapy or radio therapy.

A crash diet or chronic protein deficiency in the diet can lead to hair loss, as can menopause and some oral contraceptives. Abnormalities in thyroid function can contribute to hair loss, as can some illnesses, stress or a major operation. Pregnancy leads to hormonal changes which can increase hair growth. When the body returns to normal after child birth, a

96 New Hair Restoration

sudden loss of the extra hair may give the impression of excessive hair loss.

Treatments Available, Including Hair Transplant

The treatment of hair loss in women will depend primarily on the cause and must be discussed with a doctor or hair restoration specialist.

Many products are available to thicken the existing hair, or camouflage thinning patches of the scalp in the short term. Hairpieces or wigs can also be used and may be the preferred option for widespread or considerable hair loss on the scalp.

Hair loss in women may have hormonal causes. If it is due to hormonal changes such as in pregnancy or child birth, it will be temporary and will readjust accordingly. In other cases treatment with anti-androgens may be suitable, or simply changing the oral contraceptive, if taken, to one with low androgen activity.

Nutritional causes of hair loss can be addressed by diet changes or nutritional supplements.

For many women, including those with pattern hair loss due to genetic factors, the use of Minoxidil (Rogaine®) or the HairMax LaserComb® can be very effective treatments. Both have been tested in clinical trials and are approved by the FDA for use in hair loss. Minoxidil is a topical solution applied to the scalp daily. The HairMax LaserComb® is the size of a large hairbrush and is used by simply brushing across the scalp. It allows laser beams to penetrate the scalp and activate the hair follicles, and can improve hair growth and hair condition.

A hair transplant is also an option for some women. The suitability will depend on the cause and extent of the hair

loss and whether there is sufficient hair density in the donor region.

If hair loss is confined to a small area, such as a receding hair line in the temples or due to scarring, a transplant of only a few hundred follicles can be sufficient to make a significant difference to the woman's appearance and self esteem.

The decision on treatment must be made in discussion between the patient and a doctor or hair restoration specialist. It will depend on the cause and extent of hair loss, the cost of various options and the desired outcome.

Both women and men should be wary of treatments offering 'miraculous', 'sensational' or 'guaranteed' results. Hair loss is a medical condition and requires medical treatment. As in any medical treatment, the results will vary between individuals and the outcome cannot be guaranteed.

Having said this, women should not be discouraged from seeking medical advice and the numerous benefits to be gained from partial or full hair restoration. Increased hair growth or hair thickness can give an enormous boost to a woman's self confidence and self esteem, and should never be underestimated.

Hair Texture: Diameter and Density

The texture of hair is a result of both thickness of the individual strands and density of hairs on the scalp. Scalp hair grows at about 0.6 – 1.25cm per month, and will normally reduce in thickness and density with age. Hair in an individual person is at thickest around 20 years, and diminishes thereafter.

The thickness of hair ranges from fine to coarse, and varies between different ethnic groups and people. Fine hair has a diameter of 50 μm (microns) and is most susceptible to breakage. Medium hair is 60-90 μm and is the most common. Coarse hair is relatively strong with and is 100 μm or more.

98 New Hair Restoration

The density of hair refers to the number of hairs on the scalp. As each follicle is in a continuous cycle of growth, degradation and resting, the number of hairs of a noticeable length will be less than the number of follicles. 50 – 100 hairs are shed normally every day and 10% of follicles will be resting stage at any time.

On average there are 100,000 – 150,000 follicles on the scalp. If there are fewer than 90,000 hairs on the scalp, the hair density is considered thin. A rough estimate of hair thickness can be made by closing your thumb and forefinger around your ponytail. If your fingers form a 1cm circle or smaller, your hair is thin. If they form a circle 2cm or larger, your hair is thick.

There are three major types of ethnic hair: Asian, African and Caucasian. People of Asian descent have low density hair, which is coarse and gives the appearance of thick hair. Ethnic African hair has characteristic irregular curling along the length, giving high coverage and high density, yet of fine diameter. Caucasian hair is between these two extremes with great variation. Frequently people with blonde hair have the highest number of follicles and those with red hair have the fewest.

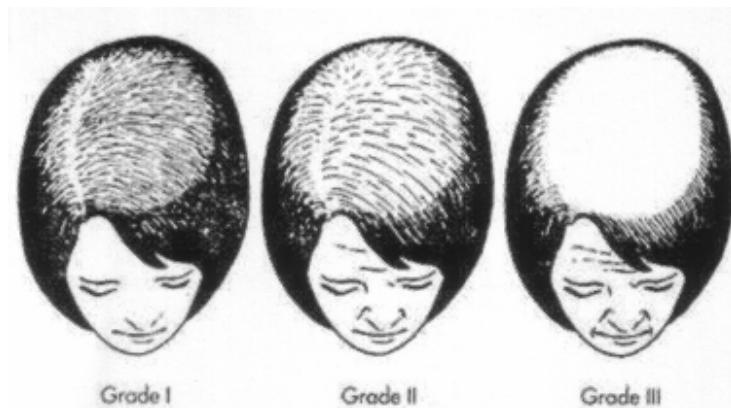
Fine hair can be a consequence and a predictor of thinning hair. People's hair tends to become finer before being lost; Women with thin hair initially are more susceptible to hair loss than those with naturally coarse hair.

For more information visit the website for the International Society of Hair Restoration Surgery - www.ishrs.com - and their articles on hair loss in women:

- Hair Loss and Restoration in Women
<http://www.ishrs.org/articles/hair-loss-women.htm>

Women's Hair Loss 99

- Psychological Effects of Hair Loss in Women
<http://www.ishrs.org/articles/hair-loss-effects.htm>
- When is Hair Transplantation an Option for a Woman with Hair Loss?
<http://www.ishrs.org/articles/hair-transplants-women2.htm>
- “Women and Hair Loss: A Physician’s Perspective”
Dr Matt L. Leavitt 2004 Published by Beautiful Media USA
www.beautimedia.com



The Ludwig Classification of Female Pattern Hair Loss.

100 New Hair Restoration

10

Repairing Superseded Techniques.

Thousands of men and women have undergone hair transplant surgery over the years. These patients now have permanent hair growing in their once thinning areas. Earlier cases the hair restorations were less advanced than today's technology and surgical techniques.

Earlier chapters detailed and compared various surgical hair restoration techniques that developed over the years. The objective in sharing this information is to show why there is such a dramatic difference in the appearances of older hair transplants and the new hair transplant.

Plugs

The standard surgical method was a technique that transplanted large bunches of hair follicles - known as "plugs"- from the back of the head to the balding areas. Plugs contained 30 or more hairs, which could not be positioned or angled to look natural.

Since hair does not grow in evenly spaced rows of large tufts, it produced noticeably unnatural looking results, sometimes referred to as "Barbie-doll" or "corn-row" hair.

102 New Hair Restoration

Fixing Old-Style Hair Transplants

For “plugs” from earlier years, corrective surgery (plug repair) and refinements to hairlines are possible.

Hair restoration surgeons skilled in Follicular Unit Transplant, in combination with an artistic hair grafting approach and some creative ‘recycling’ of hair from the tufts, have the ability to help patients to significantly improve the appearance of their previous hair transplant surgery.

The “pluggy” transplant performed a decade earlier shows the “corn row” appearance.



With Follicular Unit grafts we were able to fill in the spaces between the plugs to achieve a more natural and acceptable appearance after only one pass.

In some cases removal and recycling of the patient's plugs is necessary, in addition to transplanting new, smaller grafts around the older transplanted hair. In these procedures, the older, large plugs are partially or entirely removed from the scalp and "recycled". The surgeon divides each plug into much smaller Follicular Unit grafts and then re-implants them into the scalp. Great care and skill is required to create natural angles, the right orientation and position of the transplanted hair.

"Recycled" hair plugs, together with newly harvested hair transplanted from the back of the head, offer patients with old-style hair restorations a more natural hairline. It is quite common for these patients to achieve a new natural look in only one session.

More Good News

For patients considering 'hairline refinement' surgery to improve upon their earlier hair restoration results, there has never been a better time to seek help.

Patients are surprised and happy when they learn that today's surgical procedures are so much more efficient, effective and comfortable than their earlier transplant surgeries. Post-operative healing is also easier and faster. The natural and undetectable new hairline is certainly the best news.

104 New Hair Restoration

11

Eyebrows and Eyelashes

Loss of eyebrow or eyelash hair can make an individual feel very self-conscious about his or her appearance and new hair transplantation techniques can often restore the hair. Many people don't realise the full impact that eyebrows or eyelashes can make on the total facial appearance until you see a person without them.

Hair transplantation has been used successfully for many years to fill out patchy or absent eyebrows. Eyelash transplantation is a more recent procedure. The procedures should only be performed by a surgeon who has had further specialised training in these techniques

Eyebrow hair loss can occur for several reasons, and is most commonly associated with the following:

- Physical trauma
- Systemic or local disease
- Over plucking, typically to reshape the eyebrow
- Trichotillomania ,obsessive compulsive plucking
- Medical or surgical treatments like radiation therapy or chemotherapy
- Genetic factors

106 The New Hair Restoration

Eyebrow restoration involves placement of single hairs in the natural growth pattern of the previous hair. Meticulous placement of several hundred hairs can restore eyebrows.

Eyelash restoration surgery is performed with local anaesthesia and involves the transplantation of 20 to 25 specially prepared grafts to each upper eyelid using a technique that I have developed. Donor hair is taken from the back of the head and the grafts are trimmed very fine. The new lashes grow longer than usual and must be cut regularly. Eyelash reconstruction elevates patients' self-esteem.



Before



After

For more information, visit the website for the International Society of Hair Restoration Surgery - www.ishrs.com - and specifically their article on eyelash transplantation:
<http://www.ishrs.org/articles/eyelash-transplantation.htm>

12

Summary

The main advantages of Follicular Unit Transplantation are greater hair coverage, more natural appearance with undetectable surgery.

Options available and the results of the latest techniques in hair transplant surgery have been described. However it is important to seek expert advice as results do vary from person to person depending on hair characteristics, general health and other unknown factors. It is wise to thoroughly research a surgeon's credentials before committing to a hair transplant.

Check whether the surgeon is a member of the International Society of Hair Restoration Surgery (ISHRS) and whether they work full or part time in hair restoration. Also check whether they will actually perform all of the procedure themselves, and ask what techniques they use. How will they harvest the donor hair and how will the hair follicles be transplanted into the recipient areas? Will the surgeon achieve a natural looking hairline as in the '*snail track*'? Will they achieve hair density in thinning areas? Ask if you can see photos or speak to former patients.

Think about your expectations and discuss these in detail with the hair restoration specialist. Are you looking for treatment for short, medium or long term results?

108 The New Hair Restoration

If you are not convinced that the clinic you visit meets the strict standards you feel are required to give you the best results, go elsewhere. This is a major decision on your part that requires research. Obtain the best possible hair restoration advice and treatment. The results of hair transplant surgery are permanent. To avoid the possibility of costly corrective treatment later, care should be taken to make an informed initial decision.

Reputable hair transplant surgeons are members of ISHRS (International Society of Hair Restoration Surgery). You can visit the society's website for reliable information: www.ishrs.org - *International Society of Hair Restoration Surgery*

13

Hair Transplantation Q & A

Q. What is hair transplantation or hair restoration surgery?

A. Hair transplantation is also referred to as hair restoration surgery. It is considered to be a minor, outpatient surgical procedure. It involves transplanting grafts of hair follicles that always grow hair (this is the hair located toward the base of the back of the scalp) into the areas affected by hair thinning or loss.

Q. Can you use someone else's hair for my transplant?

A. No, because as "foreign tissue" it would be rejected by your body.

Q. Does your clinic still use "plug" transplants?

A. No. The plug technique was the method used for hair transplant surgery from the 1950's through the 1980's. Plugs consisted of larger tufts with as many as thirty hairs. Today, advanced surgical techniques allow us to use Micro Grafts, consisting of only 1-4 hairs. Follicular Unit grafts used today are far superior to the old plug method.

110 New Hair Restoration

Q. Why doesn't the hair that is transplanted fall out?

A. While they may look identical, the hairs used in transplantation are genetically different from the hairs that fall out in pattern baldness. These is why sufferers of androgenic alopecia (Male Pattern Baldness) usually lose hair at the front and top of the head, but retain the hair that grows on the sides and back of the head.

Q. Won't the bald area kill the new grafts?

A. The previously bald area does not "poison" the transplanted grafts; this is a common misconception. The fact that the transplanted hair follicles have been moved from one area of the scalp to another has no effect on their genetic predisposition to grow hair.

Q. Is a hair transplant painful?

A. New advances in the field of hair restoration surgery provide a relatively pain-free experience for today's patients. During the procedure, patients require only a mild anaesthetic to minimise discomfort. Following surgery, many patients need nothing more than paracetamol for a few days. In fact many patients take no medication afterwards.

Q. Is a patient awake during transplantation surgery?

A. Patients are given a mild sedation. The patient drifts in and out of sleep during the procedure and the scalp is numb due to anaesthetic for the duration of the surgery.

Q. What about general anaesthesia?

A. No, general anaesthesia is unnecessary for this procedure.

Q. How much time does it take?

A. Follicular Unit hair transplants often take several hours depending on how many units will be implanted. Mega-sessions can take more than five hours. The length of time depends on the special procedure involved and the area of implant placement.

Q. Will I miss work or need time off after surgery?

A. Patients will not be able to drive or operate machinery for 24 hours after surgery due to the sedation. I recommend having 3 days relaxation after the procedure.

Q. What about my exercise program following surgery?

A. It is best to avoid any strenuous exercise for up to a week following surgery. Ease into your exercise program by cutting the time you normally do to half, then gradually over two to three weeks resume your normal pace.

Q. Will I be able to wear my hairpiece after surgery?

A. Yes, after the first three days during which time the recipient sites should be kept dry. From then on, we advise patients to do without it as much as possible for the purposes of quicker healing and hair growth. It is also easier to complete the transition out of a hairpiece when a patient can learn to become less dependent on it. Rubbing from the hairpiece has been reported anecdotally as interfering with hair growth.

Q. Are the hairs long immediately after the transplant?

A. No. Typically, the transplanted hairs are only a few millimetres in length immediately following surgery. During the first fortnight, nearly all of the newly transplanted hairs will fall out. This is normal. It takes approximately 3-4 months following this initial shedding for new hair growth to begin.

Q. How long will it take before my hair starts to grow permanently?

A. You can expect to see normal, permanent hair growth 3-4 months following transplantation. The normal rate of hair growth ranges from 0.6 – 1.25cm per month. The full result will require 6-12 months to be appreciated. Sometimes growth can be delayed for 18-24 months for reasons unknown.

Q. Can I perm, colour or dye my new hair?

A. Yes, you can. The transplanted hair is your own hair, and can be cut, coloured and styled as normal after 2 weeks.

Q. What about insurance?

A. Usually insurance does not cover elective surgical procedures. If it is accident or health related, than you will likely have some, if not all covered.

Q. When is the best time to have my transplant?

A. While most men and women who have begun to notice hair loss can benefit from hair restoration, not all patients are candidates for surgical hair transplantation. For some men it is possible to stop or even reverse the progression of hair loss with medical therapies such as Rogaine®, Propecia® or HairMax LaserComb®. Rogaine® and HairMax LaserComb® are also effective non-surgical treatments for women.

Q. At what age should a person consider hair restoration?

A. Medical and surgical hair restoration can be safely and effectively performed on healthy patients of all ages. Typically, the youngest patients are in their twenties while the majority of patients range in age from mid-thirties to mid-sixties.

Since pattern hair loss, the most common form of hair loss, is irreversible without medical intervention, patients can retain more of their hair if they act early.



Mimicking nature—The gold Standard in New Hair Restoration.

114 New Hair Restoration

Glossary

5-Alpha-reductase

5-alpha-reductase is the enzyme which converts testosterone to dihydrotestosterone (DHT), the hormone that triggers Androgenic Alopecia in individuals who are genetically susceptible. Type 1 5-alpha-reductase is found primarily in the skin and 5-alpha-reductase Type 2 is found primarily in the prostate and inner sheath of the hair follicle.

Alopecia

Complete or partial lack of hair resulting from various conditions.

Alopecia Areata

Alopecia Areata is the medical term for hair loss which occurs in patches on the scalp.

Alopecia Totalis

This is the complete loss of scalp hair often combined with the loss of eyebrows and eyelashes.

Alopecia Universalis

Alopecia Universalis is the term for hair loss which occurs over the entire body.

Anagen

This is the term for the growing phase of the hair cycle which lasts five - seven years in a healthy person.

Androgenic Alopecia

This term is the common name for male or female pattern baldness which depends on the genetic predisposition of the hair follicles and the levels of androgen in the body.

Androgens

Androgens are male sex hormones.

Anti-androgen

An anti-androgen blocks the effects of androgens, normally by blocking the receptor sites.

Catagen

This is the end of the active growth period of a hair follicle, and is marked by changes in the follicle.

Cicatricial Alopecia

This is baldness due to scarring. The follicles are absent in scar tissue.

Coronal angled grafting (a.k.a. lateral grafts)

Grafts are placed into recipient sites made with a very small rectangular blade that pierces the skin at right angles to the hair direction.

Crown

Area at the top of the head.

Cyproterone Acetate

Cyproterone Acetate is an anti-androgen. It is prescribed to treat hirsutism and androgenic alopecia in women.

Dermal papilla

The dermal papilla is situated at the base of the hair follicle. The dermal papilla contains nerves and blood vessels which supply glucose for energy and amino acids to make keratin.

DHT (5-alpha dihydrotestosterone)

DHT is a male hormone that is suggested to be the main cause for the miniaturization of the hair follicle and subsequent hair

loss. DHT is formed from the male hormone testosterone by the enzyme 5-alpha-reductase.

Donor Site

Site where hair follicles are harvested during transplant surgery.

Dutasteride

A medication for the treatment of benign prostatic hyperplasia (BPH); It is an inhibitor of type 1 and type 2 5-alpha-reductase enzymes responsible for converting testosterone to DHT.

Finasteride

Finasteride is the generic name of a drug that binds with 5-alpha-reductase type 2 enzyme to reduce the amount of DHT in the prostate and serum. Finasteride is approved by the FDA for treatment of benign prostatic hyperplasia (BPH) as Proscar® 5mg daily dose and hair loss as Propecia® 1mg daily dose.

Follicle

The follicle is a tube-like structure in the skin in which develops a hair shaft.

Follicular Unit

Groupings of 1 to 4 hairs that grow together.

Follicular Unit Transplantation

A recent technique in hair transplantation where the naturally occurring follicular units of hair follicles are implanted as a natural group.

Gene Therapy

Gene therapy is a treatment method which involves the manipulation of the genetic makeup.

118 New Hair Restoration

Hair Cloning

A technique under development which could make an unlimited crop of donor hair available for transplanting.

Hair-A-Gain®

A brand name for Minoxidil.

Ludwig Scale

Classification of female pattern hair loss.

Medulla

The medulla is a central zone of cells usually only present in large, thick hairs.

Micro Graft

A very small hair graft usually consisting of one or two follicles.

Mini Graft

A small hair graft usually consisting of between three to ten hair follicles.

Minoxidil

Minoxidil is the generic name of the brand name drug Rogaine®. Minoxidil is a topical lotion available over-the-counter in 2% to 5% solution. Minoxidil was the first drug to be approved by the FDA for the treatment of androgenic alopecia.

Norwood/Hamilton Scale

The most commonly used scale for the classification of male pattern hair loss.

Papilla

Knoblike indentation at the bottom of the follicle which contains a vascular loop for nourishment.

Propecia®

A brand name for Finasteride 1mg, approved for the treatment of male pattern hair loss.

Proscar®

The brand name for Finasteride 5mg, approved for the treatment of benign prostatic hyperplasia (BPH).

Punch Graft

The old fashioned way of removing grafts for hair transplants, usually carried out using an instrument called a trephine.

Recipient Site

The bald or thinning area into which hair grafts or plugs are transplanted.

Rogaine® and Hair-A-Gain®

Brand names for Minoxidil, a topical lotion for the treatment of hair loss.

Sagittal Angled Grafting

Grafts are placed into recipient sites made with a very small rectangular blade that pierced the skin parallel to the hair direction.

Saw Palmetto

Saw Palmetto is a plant native to North America. It may have some, unproven therapeutic benefits for benign prostatic hyperplasia (BPH). It does not lower DHT or testosterone levels and has never been shown to increase hair growth.

Sebaceous glands

These are sebum (oil) producing glands found in the skin throughout the body except in the palms of the hands and soles of the feet.

120 New Hair Restoration

Snail Track Technique

A term coined by Dr Martinick to describe the irregular outline of the hairline giving a more natural appearance.

Spironolactone

This drug acts as an anti-androgen and is used in the treatment of androgen related disorders such as female pattern baldness and hirsutism.

Telogen

The resting phase of the hair cycle.

Testosterone

A predominantly male hormone which promotes the development of male characteristics.

Topically

Applied directly onto the skin.

Traction Alopecia

This refers to hair loss which occurs due to traction being placed on hair. Traction alopecia is commonly seen with braids, pony tails and other hairstyles which cause tension on the scalp.

Transection

Damage to hair follicles that can decrease survival after transplantation.

Trichotillomania

A compulsion to pull out one's own hair.

Vellus

The soft downy hair found covering the body.

Vertex

The top of the head towards the posterior position, including the area at which the hair grows in a spiral pattern.

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Additional Information

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Other useful websites may include the following:

International Society of Hair Restoration Surgery
www.ishrs.org

Objective information on hair loss and treatments:
www.hairlossinfo.com.au

Information on hair transplants; Balding Blog:
www.iahrs.org , www.baldingblog.com

Information on hair loss: www.hairlosshelp.com

Or search on Google for Dr. Jennifer Martinick