

The Latest in
Follicular Unit Extraction

HAIR TRANSPLANT SURGERY



Presented By

Your Name Here

The New Hair
Restoration
Follicular Unit
Hair Transplants
And
Stem Cell Injection
Therapy

Presented By

Your Name Here

© 2015 All Rights Reserved United States Copyright
2015

Published by Mini Books Express

Without limiting the rights under the copyright above,
no part of this publication may be reproduced, stored
in or introduced into a retrieval system, or transmitted
in any form or by any means (electronic, mechanical,
photocopying, recording, or otherwise) without the
prior written permission of the publisher of this book.

Cover: Art design by R.L. Comstock

Disclaimer

The information presented in this book is not intended
to replace the medical advice of your personal physi-
cian or any surgeon performing cosmetic surgery. In
addition, the information expressed by the author in
this book is the opinion of the author based on experi-
ences in performing these procedures.

Table of Contents

Part One Overview of FUE/FUT	8
1 <i>New and Exciting Methods</i>	9
2 <i>Hair Restoration Consultation</i>	23
3 <i>The Medical Evaluation</i>	30
Part Two Follicular Unit Extraction (FUE)	37
4 <i>The Follicular Extraction Revolution</i>	38
5 <i>Preparing for FUE Surgery</i>	45
6 <i>The Follicular Unit Extraction Procedure</i>	51
7 <i>Implanting the Follicular Units</i>	60
8 <i>Recovery after FUE</i>	70
Part Three Follicular Hair Transplant for Women	74
9 <i>Women and Hair Loss</i>	75
Part Four Surgical Refinement and Specialty Hair Transplant	87
10 <i>Plug Repair, Touch-ups, and Hairline Refinement</i>	88
11 <i>Eyebrows, Eyelashes, Beards and Pubic Hair</i>	92
12 <i>Results and Repairs</i>	98
13 <i>Summary of Hair Restoration Surgery</i>	103
14 <i>Testimonials</i>	105
15 <i>Hair Transplantation Q&A</i>	106
Part Five Stem Cell/PRP Injection	111
16 <i>Platelet Rich Plasma Therapy for Hair Growth</i>	112
17 <i>Platelet Rich Plasma Therapy Injections</i>	115
<i>About the Author</i>	123

Part One

Overview of FUE

1

New and Exciting Methods!

We live in a new era of medical innovation and possibilities. Advances in medical research, technology and surgical techniques have restored patients' faith in the field of medical hair restoration. Patients' results prove that with the Multi-Therapy Approach to hair restoration we now have the means to replace the bald area with permanent hair and also prolong the life of existing hair with medicines.

The hair transplant procedure, most often, consists of harvesting healthy hair from the lower back or sides of the head,(donor area) removing it, and then through a process of careful and meticulous surgical techniques giving a natural appearance in replanting the donor hair in the bald areas of the scalp or other areas of the body.

One of the most exciting thought of having a transplant is the knowledge that the transplanted hair from a patient's own donor area is a permanent hair procedure that lasts a lifetime. Without special maintenance required, it will grow, can be trimmed, combed and coloured as with any normal hair. This newer method has been performed on millions of patients seeking to restore hair to a natural, acceptable appearance.

Since the 1990 the Follicular Hair Transplant method of hair replacement has been the innovative standard in hair transplants. Now, in a more precise procedure the new Follicular unit Extraction method (FUE) is gaining attention in the field of hair replacement.

The FUE (follicular unit extraction) method, a minimally invasive method of hair transplantation introduced in the late ninety's and the automated FUE method, the newest most advanced method of hair transplantation available today.

From a surgical standpoint, an FUE hair transplant is a safe, minimally invasive, relatively minor procedure. With the FUE method there is no need to excise a piece of the scalp, as with the Follicular Hair Transplant because the follicles are removed directly from the donor area using a tiny 1 mm punch (punch sizes vary) and forceps.

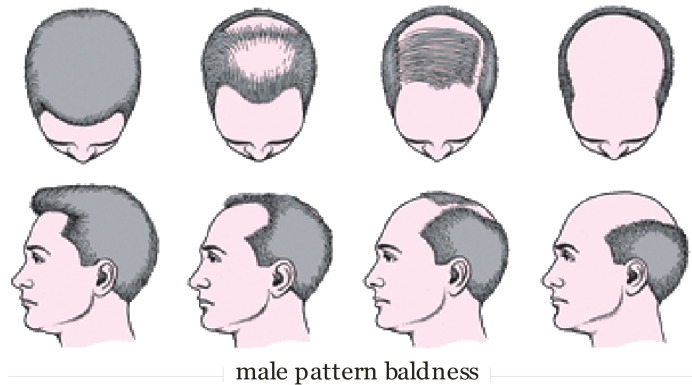
The punch is manually rotated to make a small circular incision in the skin around the follicular unit (hair follicles), which is then removed directly from the scalp using forceps. After the appropriate number of units has been removed, technicians separate the grafts into units of one to four hairs and these grafts are implanted much the same way as the "strip" method. With the FUE method there is little bleeding and fewer complications than with the "strip" method. The procedure is performed with local anesthetic and no intravenous or intra-muscular sedation is required.

The benefits of the FUE method to the patient are that there is minimal discomfort, no scalpel incision, no sutures, no linear scar, little to no risk of complications, quick recovery time, fewer activity limitations and a more natural looking result than traditional strip methods (patients can wear their hair short if they choose too without an unsightly scar).

An FUE hair transplant is the most beneficial for the patient; however the majority of hair restoration doctors do not offer the FUE procedure because there are some nuisances associated with an FUE hair transplant.

First, doing FUE manually is very tedious and time consuming, making the procedure too costly for most patients. Next, it is difficult to learn the FUE procedure and unless the doctor becomes very skilled there is a risk for a high transection (damage) rate of the follicles. Finally, forceps are used in a manual FUE to extract and implant the follicles which can easily traumatize the follicles as well. As a result most doctors are not willing to spend the time to learn this procedure and they continue to do the easier, more invasive, faster “strip” method.

Hair shapes of Balding Heads



How Hair Grows

Scalp hair—at the top, sides and back of the head—grows in groupings of individual hairs. When viewed using 5 to 10 powers of magnification, we can clearly see groups of one to four shafts of hair arising from a single point naturally from the scalp, called follicular units or grafts.

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 extraction, we surgically harvest hair from the donor site keeping each unit intact.

Hairs Generally Gleaned One of Two Ways.

“Strip harvesting,” involves taking out a strip of scalp skin, usually from the back of the head, and then microscopically separating that strip into hundreds — or thousands of follicular units. Scalp hair transplants require thousands of grafts; an eyebrow transplant requires several hundred. The length and width of strip to be removed depends upon the number of grafts required and density and laxity of donor area.

Follicular unit extraction (FUE) is the most recent hair transplant procedure in which the follicular units are harvested individually with specialized manual or motorized punch biopsies

With the FUE, hair extraction was done randomly leaving tiny scars scattered over a large area. Once hair is harvested and dissection is going on, the surgeon creates tiny holes on the scalp, or eyebrows, mustache, sideburns or pubic area in preparation for the seeding process.

Restoring Self Image with FUE

Although it is usually an unwanted sign of ageing nearly 90 percent of the male population of the world, hair loss may no longer be an inevitable result of simply living. Hopefully, by the time you finish this book you will understand the proven, effective treatment options that now becoming so popular. In subsequent chapters you will realize that hair

loss is a issue that can be solved with these new, exciting methods that will be explained in detail.

When a man or woman experiences hair loss, he or she may consciously or subconsciously feel the effects of lowered self-confidence, which results from “premature” ageing. Each day your self-image is reflected in the mirror, the disparity can begin to weigh heavily on your mind. For the most part, men and women instinctively have the desire to look good and feel good, and to retain as long as possible a fresh, youthful look. Because of this reality of living in the 21st century, in conjunction with technological advances in medicine, there has been an increased demand for cosmetic surgery.

We live in a competitive and rapidly changing society, with fluctuations in the economy, volatility in the job market, higher unemployment rates and strong competition among people of variable ages for the same jobs. The high divorce rate is forcing thousands of people into competitive social situations and seeking a more youthful appearance..

Restoring our own youthfulness or good looks can create a boost in self-confidence as well as self-esteem, which can permeate all of our interactions—business and social. When we look and feel good about ourselves, it shows. Though a full head of hair may seem relatively unimportant in the work-a-day world, surveys have shown that men with full heads of hair are more likely to be hired when compared with their equally qualified, balding counterparts. For women, it is considered unnatural to be bald.

It has taken years to arrive at the current state-of-the-art grafting techniques that restore hair to the balding head,

such as the follicular hair transplants and follicular hair extraction allow for a much better appearance and natural hair growth.



**Number of follicular units:
2000 and number of ses-
sions**



Surgical Hair Restoration

Surgical hair restoration (commonly known as hair transplantation) permanently re-grows hair in areas previously affected by hair thinning and loss. Through medical research we know 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 genetically programmed differently from hair located at the hair-line and top of the scalp.

In hair transplant surgery, doctors take, or ‘harvest’, hair follicles from a single hair removed from the back of the head, where there is permanent hair. In this manner, they can create over a thousand grafts, each consisting of 1 to 4 hairs that can be surgically placed for hair growth in bald spots.

It is common knowledge today that hair transplanted to bald areas will grow as well as it previously did in the harvested ‘donor’ areas and will continue to grow permanently.

We now know that 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.

Hair Plugs Are Out, Follicular Units Are In!

Even today, when most people think of hair replacement they think of the hair similar to a doll's head of hair. This is due to doctors, who for many years performed 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.

As surgical hair restoration has evolved, so have outstanding results that skilled surgeons can deliver to their patients. ULTRA REFINED FOLLICULAR UNIT GRAFTING is a new standard of hair replacement that allows surgeons to recreate the natural hairline look better than any previous method. This is mainly because by using this technique, surgeons can actually place micro grafts containing one to four hairs into the recipient sites on the scalp in a more natural appearance. Careful orientation of each transplanted follicle to follow the natural direction of the hair and placing them such that they do not overlap or line up unnecessarily helps to achieve maximum coverage (coronal vs. sagittal placements).

Lateral slit technique and creating a gradual increasing hair gives the hairline undetectable transplants This be done by single, double and multiple grafts in a systematic way.

The Newer Surgical Techniques Demand Skilled Surgeons performing the Follicular Unit Extraction procedure.

Older techniques and technology significantly hindered a Surgeons' abilities to give hair transplant patient's aesthetically natural-looking hairlines.

Now, as patient demand for the Follicular Unit Grafting technique increases, doctors must also master the technology and fine art of hairline design moving further back, known as the ‘snail track’. This new technique earns its name from the way it mimics the natural hair line irregularity, rather than having a sharply defined edge. It is also denser in some parts than others. (The reader should observe ‘youthful hairlines’ closely.)

Aided by powerful microscopes and better surgical instrumentation, these tools implemented by skill surgeons create remarkably natural hairlines and much more dense hair scalp coverage. The best hair restoration surgeons also possess the skills needed to design the microelements of the hairline, at the transplant recipient site level. This is where size of the site, angulations, orientation and spacing all come into play. These surgical and aesthetic skills ultimately determine how the hair will grow into outstanding, newly re-created in a natural pattern.

A Brief Comparison of New and Old Surgical Methods

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

Scalp 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-990’s, Fewer of these procedures are

being performed because of various complications, including stretching back of the balding area, the potential for visible scarring with 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 of bald scalp 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 than others. In the hands of less experienced surgeons, this procedure often produced poor results.

Minigraft 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 minigrafts hair transplantation procedures exclusively.

The Very Latest Method

There is no doubt that the new follicular hair transplant FUT and follicular hair extraction FUE offer 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 the procedure.

This method of hair transplanting makes more extensive and effective use of individual follicles taken from a patient's scalp that are hair producing. In our 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, impossible to distinguish from a person's natural hair growth on the remaining part of the scalp. For a person seeking truly attractive, natural-looking hair, this these are new procedure to have.

ACell + PRP

The new and exciting ACell and PRP injections for hair growth and healing of follicular units is now a reality. More and more hair surgeons are discovering the benefits of ACell + PRP (Platelet Rich Plasma) to assist in the hair

transplant procedure and also for injections of thinning hair. This new breakthrough will be explained in detail in later chapters of this book.



Diffuse Female Alopecia before and after one year. Number of sessions one.





Before and after eight months, 2000 grafts one session.



2

Hair Restoration Consultation

Before undergoing any medical or surgical procedure, it is always advisable to research your options and seek a few 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

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

Earlier you were advised to do your homework and you were provided with the names of 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 a few 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. This also helps to reduce your chances of encountering a second-rate hair restoration practitioner who may provide substandard care and results.

Consultations May Vary

Over the years, there have been compelling infomercials on television about hair restoration. In the majority of these cases, high-pressured 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, leave 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, their areas 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 minimized. At this stage, the doctor is already planning how he or she will place different groupings of hairs in different patterns to best fit that individual. Taking time for these details enhances the doctor's ability to formulate a superior treatment plan and hairline design for the future 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.
- How did you get interested in the field of hair restoration?
- How long have you been performing surgical hair restoration surgery?
- How many surgical procedures do you perform in a day? Regarding a minimum or maximum number of procedures, many factors determine how many surgeries a doctor can perform in the course of a day. A number between one and four is probably 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?
- 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 references.
- 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? The most detectable part of a hair transplant is the first inch. 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 re-touched.
- 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?
- 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 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.

3

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 plt, 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 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®.

For women: - Evaluation of HB, ANEMIA, Menstrual H/O, PCOD, THYROID status is a must and regarding medication enquire about oral contraception usage is also a must. FOR BOTH MEN AND WOMEN CERTAIN PRECAUTIONS ARE COMMON.THEY ARE:

Need to change B-BLOKER antihypertensive before surgery.

2. Advised to stop aspirin 1-2 wks before the surgery.

3. Stop other NSAIDS 5-7 days before the surgery

4.If possible stop smoking 1-2 wks before 4-12 wks after the surgery.

Generally Nicotine causes vascular compromise of the scalp and more damage to hair.]

5. Stop hot drinks 3 days before and 7 days after the surgery.

6. Stop all Homeopathy and Ayurvedic medicines 10-15 days before surgery. Many of these drugs cause prolonged bleeding time and influence clotting times.

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, we evaluate each patient's hair loss history.

Patient's 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's hair loss history? (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®, 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 unnatural-looking prior transplant work be improved?
- Where are your coverage priorities? Front hairline, mid-scalp, crown, entire head?

While these are rather 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! As we said earlier in the chapter, you need to clearly communicate with your doctor and the medical hair restoration team.

The Hair and Scalp Examination

Hair and scalp examinations vary by individual practitioner. For the purposes of this book, we will explain the more common elements of this part of the medical evaluation.

Earlier it was mentioned that hair restoration surgeons must evaluate the patient's hair colour, texture and type in order to develop the surgical plan. By examining the condition of the patient's hair follicles and hair density under magnification, the doctor can more accurately determine how many grafts and sessions may be required to achieve your hair restoration objectives.

If a patient has undergone prior hair restoration surgical procedures, the doctor will want to examine the donor area in order to determine how many grafts may be extracted from the remaining tissue. The doctor[r will also evaluate the extent and condition of the scarring. (Regarding KELOID tendency of the patient. wide and raised scar are seen.)

Previous transplant work in the hairline and other regions of the scalp should also be closely examined. In some cases, there can be a "fill-in" around the previous work and in some instances it is better to reuse some of the grafts to achieve the surgical objectives.

The following items are essential to a great hair transplant

- Age. Your age has something to do with the hair transplant results. For one thing, as we age we tend to have less donor hair and therefore it is more difficult to secure sufficient hair, though there are ways around this in extreme cases. Many men have body hair that can be extracted and inserted into the scalp with fair results.

- Regarding age the younger the age the more unrealistic the thoughts regarding the hairline creation.] We prefer mature hair lines.
- Facial structure. The face can often determine the best hair line.
- Anatomical variation of the scalp may be seen for some patients which is to be notified by them before the surgery.]
- Quality of hair. Most often the hair on the back of the head has the best quality for extraction and planting. Many men have healthy full hair on the back of the head. It is the first area of extraction.
- Calibre (DIAMETER) of the hair, No.of roots in a unit, curly and kinky nature of the hair and finally colour contrast between scalp skin and hair colour will decide cosmetic outlook.
- Existing hairline. Young men often lose their hair on the frontal region. A careful transplant will insure that the hairline is restored with the possibility of the crown going thin or bald. Since men tend to lose their hair in stages, it is vital that the surgeon allow for future hair loss and advise the patient that a second or even a third FUT or FUE may be required to maintain a full hair appearance.

Part Two

Follicular Unit Extraction (FUE)

4

The Follicular Unit Extraction Revolution

One surgeon described the new Follicular Hair Extraction procedure as, “Nothing short of a revolution in hair restoration.”

It is the latest in hair transplants and encompasses the concept of hair replacement treatment with the revolutionary Follicular Hair Extraction (FUE) void of scalpel or stitches that is gaining popularity throughout the world.

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

The procedures of harvesting 1500 grafts, using the FUE method, may 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. Whatever the method the hair surgeon works with follicular units from one to four hairs or five units at a time.

Follicular Unit Hair Extraction

During the transplantation, hair is removed from the back of the scalp in a single strip. Microscopic dissection then allows the individual follicular units to be removed intact from this strip without being damaged.

Best Method

For the past two decades the best solution for hair replacement has been the Follicular Unit Transplantation. Not that FUT is all that bad, it has been the gold standard of hair replacement for balding heads but there are some definite advantages to the more recent FUE hair transplant procedure.

Currently, however, the latest FUE hair transplant has a considerable number of men and women seeking a less invasive and more natural appearing follicular hair extraction and hair replacement procedure Follicular Unit Extraction.

Aside from the traditional aspect of FUT, this procedure is not always suitable for those who want short hair. The wound created by the incision of the FUT method, as mentioned earlier, leave a linear scar at the back of the head

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 FUT, but there are no stitches in the donor areas as well as less discomfort. The tiny circular incisions where the follicular units are extracted will heal and 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 number of grafts compared to the strip method. Currently, most qualified hair surgeons are able to harvest between 500-700 grafts within a five to six hour period using the FUE method. This procedure is also cost prohibitive for some patients. The time and cost required for a Follicular Unit Extraction procedure that yields 600 to 800 grafts is approximately the same as that currently required to yield 1500-1800 grafts using the strip method.

Are You a Candidate for Follicular Unit Extraction?

Here are a few questions for you to consider:

- How many grafts will be needed to complete the transplant?
- What is the potential yield of donor hair on the back of your scalp?
- Are you on treatments to halt 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.

Very tight scalps, People who does not want a smiling scar on the back, Those who need simply hairline corrections, scar correction, Moustache, beard and Eyebrow correction are most suitable. Most of the people nowadays want to maintain hair very short, as it doesn't leave curvilinear scar this is most suitable In the case of poor donor area we can go for Body hair transplantation (from chest wall, upper back, beard, thighs etc., which is possible through FUE technique only.)

The FUE Technique

Follicular Unit Extraction (FUE) is a hair transplant technique in which follicular units are removed directly from the donor area. The grafts are then transplanted into region where the patient desires more density to areas of thinning, as well as other parts of the body.

Follicular Unit Extraction is different from the traditional FUT procedures in one key way: follicular units are extracted directly from the scalp in FUE, whereas follicles are microscopically dissected from a strip that has already been removed from the back of the head in the FUT.

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 FUE. 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 hair design. This is why it is critical that you evaluate a surgeon's proven expertise using the Follicular Unit Extraction technique to achieve a natural-looking hair appearance.

Genetically Defined Hair Loss

Since transplantation is not in the capacity to stop the further progression of genetic hair loss, and since medical treatment cannot give any guaranteed results, it is sometimes necessary to perform several hair transplants.

When planning an FUE it is very important during examination to make an estimate as to the amount of time the hair loss has been in existence through the help of data and photographs of the immediate family of the patient (grandparents, parents and siblings), in order to work out a worst case scenario and eventually base the treatment strategy on this information.

Micro-follicular Extraction or FUSE procedure

With this latest method the surgeon uses a microsurgical punch to extract individual follicular units. This process removes hair follicles one at a time from the back or side of the head or even other parts of the patient's body in order to augment hair or cover the bald spot or wherever the patient

desires to have hair, such as a bald scalp, sparse brow, poor lashes, a full mustache or even augmented hair in the pubic areas. The achievement of this goal depends on the amount of spare hair in order to gain sufficient donor hair from the scalp or other parts of the body.

The Hairline

The hairline (front of forehead) is the most important region of the scalp. It is astonishing to see the effect of rejuvenation in a balding person, with a lowered hairline.

After an appropriate number of follicular units have been removed from the back of the head, or wherever, there is usually sufficient hair to determine permanent hair replacement. Even with follicular unit extraction, technicians separate the grafts into units of 1 to 4 hairs, and then the grafts are implanted much the same way as the “strip” method, only the instrument that is designed for follicular unit implanting is very rapid and with much less trauma than making a slit with a scalpel.

Best Candidates for Follicular Unit Extraction

The best candidates for FUE procedure include:

- Patients interested in a smaller size procedure (typically up to less than 1500 grafts).
- Patients with a limited donor supply.
- Patients with limited scalp elasticity.

- Patient who have had FUT procedures and subsequently have a limited donor supply or limited scalp elasticity.
- Patients who have a need or desire to wear their hair exceptionally short.

FUE Technique

With **FUE**, a 0.7 mm, 0.8 and 0.9 and 1mm cylindrical punch instrument is used to take the follicular unit from the donor area and then the follicular units are placed in a special medium solution where they are delicately placed in a specially prepared solution to await for the surgeon to insert them in the recipient's bald area where they grow permanently.

5

Preparing for FUE Surgery

Once you and your doctor have determined that you are a candidate for either FUT or FUE surgical hair restoration, you may be somewhat apprehension.

By learning all you can about hair restoration, and specifically the FUE transplant 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 that you will be given cannot be minimized

The following section is not intended to replace the medical advice or instructions given by your surgeon or hair transplant consultant. These are not exhaustive lists,

rather they are to serve as a review of the general guidelines you 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 you to visit a reputable medical laboratory nearby.

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

In the Two Weeks prior to Surgery

It is essential to avoid being sunburnt 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 may 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 may be currently taking. 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 drug or 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. Be cautious.

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

Smokers and non-smokers must be avoided or minimised nicotine and even second-hand smoke for 48 hours prior to surgery.

Minoxidil and Hair Products

If you are using Rogaine® (Minoxidil) your surgeon may advise you 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 coloring/perming 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 anaesthetic 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.

Patients living more than a 90-minute drive from the surgical facility should arrange for overnight accommodations nearby. In most cases, the surgeon's office will be

pleased 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, medicated like Betadine AD.

Do not use any other hair products such as hair gel, hair-spray, or mousse.

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 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, with only a local anaesthetic administered. Patients are most often required to fast only before undergoing surgeries that require general anaesthesia.

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 full payment to be paid on the day of surgery.

Be Comfortable and Prepared

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

6

The Follicular Unit Extraction Procedure

The following is a description of the steps that must be taken to have a professionally acceptable and safe FUE hair transplant.

The most common number of follicular units in most FUE procedures is approximately 1000 -1500 grafts:

The procedure begins in a surgical unit that is fully equipped for the follicular hair extraction.

FUE procedure usually starts with marking the scalp or other areas where there is to be replacement of follicular unit hair.



Marking the scalp to indicate area to be transplanted.

First, the back of the head or any part of the body where follicular units will be extracted is trimmed. The surface of the donor area is left with about 2 mm height with hair stubble.

This allows the patient's hair to cover the site at the end of the procedure. For FUE cases in excess of 300 grafts the surgeon shaves a larger areas. Twice the area is shaved when targeting for 600 FUE grafts, three times the area for 900 grafts, and so on. Next, the donor area is cleaned with iodine followed by glucohexinol.

Photos

To have a record of the shaved donor area the surgeon may take photos.

Follicular Hair Extraction Begins

Most often you will be seated in an operating chair throughout the procedure. Some prefer having the patient lie down on an operating table on their stomach.

An aesthetics, with a very high quality syringe and little pain felt as the anesthesia is administered, is injected in to donor hair region, most often at the back of the head. This is much the same method as FUT.

Using a 30 gauge needle, the surgeon will infiltrate the donor area with 1% or 2% lidocaine containing epinephrine 1:100,000. Properly prepped the FUE the procedure begins.

The numbing is very effective for the duration of the procedure, however should there be any pain detected by the patient, the surgeon may increase the anesthesia.

Extraction Procedure

A normal saline is introduced both intra-dermally and sub-dermally to tumesce the skin. The target graft will then be identified through optical magnification and a punch tool of between .8mm to 1mm will be used to score around the FU down to the level of the mid-dermis.

This technique has two main steps. In the first step a small sharp punch scores the skin around the follicular unit. Then a small dull punch is used to go deeper into the soft tissue surrounding the follicular unit. It is then aligned with the angle of the hair shafts below the skin surface. A rotational motion of the punch is used by the hair transplant surgeon to cut through the skin and isolate FUs in the epidermis and upper dermis.

Latest equipment like motorized rotatory punch biopsy are very good in extraction due to least size punches like 0.8,0.9,and 1mm,In this a dull punch is used which is very safe for grafts. The extraction rates are very less 3-10% only with less damage.

A “stop” may be used to limit how far the instrument can pass into the skin.

Success with extraction of the follicle depends on the ability of the surgeon to align the punch perfectly parallel to the axis of the hair shafts.

In step two of the extraction phase, a fine rat-toothed forceps is used to apply gentle traction to the top of the FU until the unit is pulled loose from its deep dermal and subcutaneous connections.

The extraction process is basically microsurgery. The tiny holes to be seen at the place of graft extraction have a diameter range of 0.6 – 0.8 mm. FUE is almost bloodless with merely a few drops of blood present.

Once the follicular units have been taken from the donor area they are delicately placed in a special medium solution

The small wounds left after extracting the follicle units are retracted within the first hours. There will often be on top of these wounds, a fine point-like crust appearing. These crusts heal within several days free of complication. Because of the tiny hole left in the skin, the follicular unit extraction does not require sutures.

Touching the area of extraction a day later is possible without the sensation of having a cut finger. There will be an awareness of the extraction for several days due to some slight itching in the region where the follicles have been extracted..

Although the follicular unit extraction technique appears to be based on a simple principle of obtaining follicular units one at a time, the process is time consuming and requires a high level of skill from the hair restoration surgeon.

Angulations

There are three important layers of tissue in hair transplantation. These are the epidermis, the dermis, and the adipose. The human scalp skin is designed in layers to protect the skull from blunt injury. Thus, there is a flexible quality to the scalp that makes removal of follicles less than ideal.

Angulation in the actual removal process must be executed carefully and with precision. If the punch is not applied at just the right angle, the follicles within the target graft may become immediately transected, the instant result of which is a “decapitation” of the shallow part of the follicular unit.

Scoring

Once the punch is at the proper angle and sitting on the epidermis, the surgeon makes a twisting motion with applied pressure. The object of scoring is to cut through the epidermis into the shallow dermis at about the first 2mm of penetration. The punch is then driven down about another 2 millimeters until close to 65% of the FU has been separated from the surrounding dermis and sub dermis. Proper tension and compression will insure best extraction.



The RotoCore device for FUE hair transplants is one extraction instruments among several in use.



Another type of punch instrument

The latest punch instruments are equipped with penetration depth spacers. When beginning the extraction of securing follicular units in the donor area, the physician can measure the scalp depth and determine how many depth spacers to place over the punch. With most of the high quality punch devices, the length can be adjusted from 2mm to 6mm in 1mm increments.

The small opening left behind after the follicle unit is extracted heals in a few days. The tiny wounds contract as they heal leaving a round nearly invisible scar. The FUE

patient typically ends up with many small light colored scars, which are normally not detectable to the naked eye once the patient's hair grows out.

The tiny holes in the scalp contract as they heal, making the resulting round scar nearly invisible. The FUE patient typically ends up with many small light colored scars, which are normally not detectable to the naked eye once the patient's hair grows out.

Tiny punch marks in the donor area heal quickly



The follicular unit hair transplant (FUT), as mentioned, consists of a long strip of hair that is surgically an invasive procedure that requires more extensive healing, due to the long strip of hair and tissue removed at the back of the head where the strip is extracted. Yet, the follicular

unit transplant (FUT) has merit due to the number of follicular units taken from the strip that are regularly in excellent condition.

7

Implanting the Follicular Units

The goal of follicular placement during the insertion into the recipient area, which is where hair loss has occurred and hair follicles will be implanted during a hair transplant procedure, is to have a nature hair look.

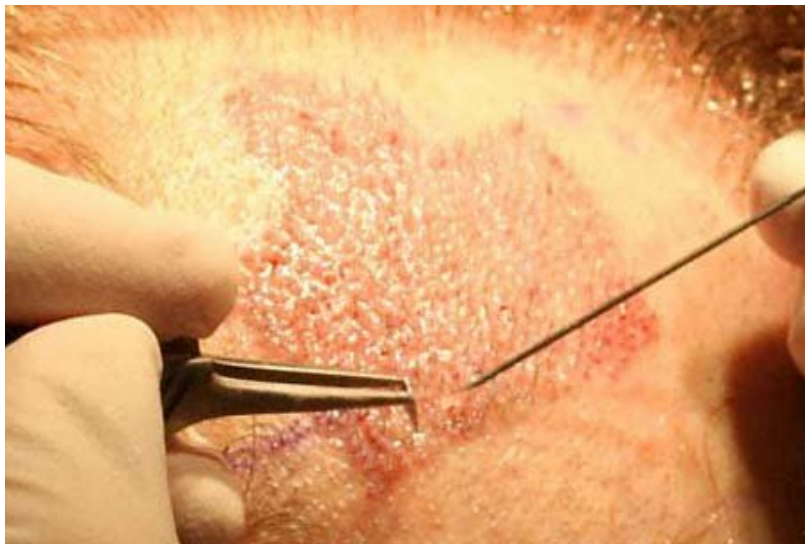
For many patients, only one, two or three graft sessions may be necessary to yield a completely satisfactory result. With some, one transplant session is often sufficient for patients with a limited hair restoration goal.

An excellent transplant of the follicular transplant requires that all grafts be placed with precise angulations and direction with an absolute perfectionist approach to achieve the best end result, which once again is a nature look.

Proper insertion is a highly skilled and carefully executed craft requiring great attention by the surgeon. The grafts must be placed where the best results can be achieved. Where larger FUE-transplant procedures (from 1500 and more grafts are inserted, it is necessary to shave the whole donor area, in order to facilitate an equal distri-

bution of extracted grafts throughout the entire recipient area.

Basically, the surgeon implants a single follicular unit on the first row or the anterior part of the hair line. This gives a more natural hair appearance. Particularly when it is this part of the head that gets the attention first when facing others. In the regions located behind the hairline, the surgeon implants double and sometime triple follicular units. This helps achieve a possible high density in this area of



the scalp.

Close view of the implanting of FUE.

It is essential that while the surgeon is placing the grafts that the patient remains still and not move the head. You may ask for a break during this phase of the procedure, because the graft can wait for a time.

During the procedure you will be either seated in a specially designed chair or lying in the prone position on an operating table, during the procedure, with the head in the best position to both you and the surgeon. This is necessary to allow for the greatest exposure to the head. This position of the head makes it convenient for the surgeons to have the best view possible with the patient as comfortable as possible as well.

Punch Angle

The proper angle of follicular hair placement is done while holding the punch in the surgeon's hand, and with the proper angle the hair that is about 2mm in length and the *none folliculi* (the small bulb the is showing from the skin) is placed in the dermis at crucial angle that offers the best result.

The grafts are implanted with extremely careful manual work at an angle, which corresponds to the natural growth direction of the hair to be found there or, respectively, that used to be there before.

When angulations are properly applied the result can be outstanding and natural appearing. This process must be performed carefully to insure proper angulations and densi-

ty. If the recipient sites are made in a haphazard fashion, the newly transplanted hair follicles will grow in an unnatural direction, making it difficult for the patient to properly style his/her hair once the transplant has matured. Don't underestimate the skill that this takes on the part of the hair surgeon.

Artistry in Angles

The difference between average/satisfactory results and completely undetectable results in hair replacement is artistry in angles. This means that a skill and truly fine hair replacement requires art.

The surgeon begins visualizing your best-looking finished hairline before ever starting the procedure and maintains that vision until it's actually accomplished. Angle design is a critical factor in achieving natural results.

With any hair transplant the surgeon must create aesthetic enhancement and the illusion of sufficient hair density to achieve the proper appearance.

Without question the former hair transplant techniques gave patients subpar results so far as natural appearance that offers a full-hair look. With today's technology and techniques, it is not an acceptable standard that the hair transplant can be detected on any area of the scalp. Patients getting less than an incredibly undetectable result are choosing the wrong surgeon.

During the procedure, the surgeon will place the prepared individual grafts into the recipient sites according to a surgical plan. The plan includes marking the hairline and

limits of recipient sites on the scalp in washable ink. The surgeon and technicians work together on implantation. Inserting the individual grafts may take several hours, depending upon the amount of grafts agreed by the patient and surgeon.



The angles at which the hairs grow on this man may be different than other male patients' angles. This is a common occurrence to encounter unique hair design and skull shapes. The hair lays different on every individual. The correct angle of the incision for the recipient site is essential to achieve proper flow.

Beyond the fullness of your hair there is symmetry or a pattern to hair. Angling the follicles in a manner that

mimics the way individual strands fall in-line with their neighbouring hairs is very important.

The hair in parts of the scalp grows at different angles. It is defined as the *character* of your hair.

A surgeon will place the transplanted hair at the appropriate angle to give a natural, correct look that is most desirable. There is no question that when the transplanted hair is skilfully and artistically placed at the proper angle the appearance is more aesthetically pleasing.

In nature the hair's direction is usually coronal. If this pattern of hair growth is followed your hair will flow in a natural, easy-to-manage fashion. This is where the ability of the surgeon to create an aesthetically artful design is essential to the procedure and artistic hair growth is skill, experience and knowledge.

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

During the grafting part of the procedure you may wish to take a break and have a drink or snack.

Variations in Graft Placement Pattern

There is a wide range of graft placement patterns that may be custom tailored to each individual for each session. The follicular unit graft surgeon wants to give the best density for natural appearance as possible.

Among the factors taken into consideration are the size of the grafts, the amount of existing hair on the scalp, the color contrast between skin and hair, and the number of

procedures to be performed as part of each patient's complete treatment program.

Remember that hair loss is continuous throughout life and the whole donor area should not be used up early in one's life.

Special Location Transplants

Transplanted hair grafts can be in locations other than the scalp. Grafts may be grown in the eyebrows, sideburns, moustache, eyelashes, and in rare cases the pubic regions of the body. Often patients need special location grafts to transplant hair after accidents, burns, or other surgical procedures. Special location transplants require great care in the placement of each graft so that the angle and direction of the transplanted hairs mimic the natural pattern of hairs growing in those areas.

Dense Packing

Dense packing, rather than merely close packing, is a variation of grafting that involves specially prepared grafts placed very close together, usually at the hairline, in a single transplant session, rather than with three or more sessions. This technique has its advantages for some patients. The patient is usually cautioned that dense packing may present additional risk of graft failure and may not be the best method for all patients.

Mega-sessions

Mega-sessions are grafting procedures where over 1,500 grafts are implanted in the scalp in a single session. They

are not suitable for all patients because of limited donor hair, previous 'plug' surgery, sun damage, smoking etc. Often individual mega session place up to 5500 grafts in 8 hrs.]

Clean-up

After placing all of the grafts, the team will gently clean your scalp so that the grafts are barely visible. Most patients leave the office without bandages applied to the scalp. Typically you will be given a light snack after surgery. Medication will be given to reduce discomfort and swelling after the local anaesthetic wears off. Photographs will be taken. The surgeon and staff will ask you questions, observe you for a time and call a taxi or friend once they are happy for you to leave.

It is advised to wear sports band encircling the head for 3-5 days continuously day and night to prevent any facial puffiness and peri orbital edema.[mechanical barrier]

The hairline is critical to the best appearance of the transplant. This is where the esthetical abilities of the surgeon come into play. The best result of a hair transplant is an esthetical creation. This is achieved with the artistic ability of the surgeon. This has to do with the punch angle and placement in the area to be filled in with new hair.

During the placement of follicular units there will be a mixture of single, double and a few triple grafts, which help to create the soft look of a natural hairline. For the first

few lines always go for single grafts, later doubles Triples and others. So that a smooth transition will be there giving undetectable hair transplants.

The goal is to create a completely natural looking result that's consistent with the patient's hair supply, the patient's specific hair characteristics, and just as importantly, the patient's goals.

The scalp will be gently cleaned, disinfected and bandaged with a fresh dressing.

It is best to have no closed or occlusive dressing to transplanted area. Many surgeons prefer to use sterile surgeons cap or washed hand kerchief over the top while going outside. It is suggested that patients avoid direct sunlight, rain water and dust, contact with transplanted area for One month, with regular head wash with boiled cooled water and diluted.

FUE for other parts of the body

Apart from scalp grafts we also transplant body grafts from various areas of the body (mostly from the chest) into the scalp. Reversely, we insert also grafts into various body regions, e.g. in hairless spots in the beard or the eyebrows.

Disadvantages of FUE Hair Transplant

One of the disadvantages of FUE procedure is that it is time consuming, and a limited number of follicular units can be

harvested in the donor area per session. That is not the case with a normal strip hair transplant where as much as 5,000 grafts can be transplanted per session. For FUE hair transplants, the average amount of grafts extracted in a single day may vary from 800 to 2,500 depending on follicular unit architecture and skin conditions. If more grafts are needed, the use of more than one session is suggested.



Several week after FUE transplant surgery

8

Recovery after FUE

Having an FUE procedure has its advantages; it is more comfortable during the healing period, and activities can be resumed in less time. Complete healing from a follicular unit extraction procedure is about 5 to 7 days, compared to two weeks for the traditional hair transplant.

The Healing Process

This healing is very rapid allowing for complete and undetectable recovery in 7-10 days. Progression of healing of donor and recipient sites (are shown in figures 2-6)

No Visible Scarring

There is also no visible scarring in the donor area, so patients can feel free to wear their hair short and avoid having a linear scar in the back of their heads.

Many patients are concerned how they will look immediately after the procedure and a few days later, as well as after many days following the procedure when they will be able to return to work with a somewhat altered hair ap-

pearance. The photos below document a patient's progress in the first ten days following hair transplant surgical procedure

At first, the formerly bald area, which is now transplanted with grafts, appears to be somewhat reddish. Oftentimes, this light redness in donor the region is already within the next 3 weeks. Under some circumstances, such redness, resulting from transplants involving much greater number of grafts, can last up to 3 months till it completely disappears. In the donor area such changes are not so obvious, since in this area hair grows anew quickly.

In smaller FUE sessions redness and scales are scarcely noticed. Besides, you have the possibility of disguising the implantation area by surrounding hair or by the use of a simple baseball cap.

Crusting

The small crusts in the donor area and in the area of implantation usually disappear completely within some days and they should not be scraped off by force. A gentle touch is enough, for these crusts rescind by themselves little by little.



These photos display the punch graft area immediately after extracting the follicular units of hair and the hair growth a little over a week later.



Some Swelling

With any hair transplant, it may happen that a small swelling at the upper part of the forehead develops around 24 hours after the treatment. On account of gravity, this swelling is observed within the first three days after treatment and may spread down to the eyebrows and eyelids or even reach the cheeks. It disappears by itself completely after a week.

During the next 10 days, wash your hair very carefully. Give much attention to the fact that the transplanted hair grafts should not be exposed to long periods of water contact. At best, do not wash your hair at all on the first day after your treatment.

For the care of your scalp during the following days, you can use the mild care set that we will provide you after larger FUE-sessions.

Avoid exposing the transplanted grafts or the small point-shaped crusts in the donor region to any form of mechanical strain during the next 10 days (for example, rubbing with a towel). Refrain from scratching any of the treated places. Ignore the itching in this part of the scalp. However, when the small crusts disappear, rubbing the donor with a towel is useful to prevent in-growing hairs.

Do not engage in any extreme sport activities during the following three weeks (for example, Bungee jumping, bodybuilding, soccer football or any danger of a head bumping).

During the next 3 weeks, refrain from swimming during this time and avoid direct exposure to the sun or going to a tanning shop.



Before



After

Part Three

Follicular Hair Transplant for Women

9

Women and 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, which has a more complex inheritance than in men. This is called androgenic alopecia (or female pattern hair loss – FPHL), and can be noticed at any age from puberty on. Up to 50% of women will be affected by hair loss due to genetic factors in their lifetime. It is a fact that fifty percent of women will suffer with hair thinning by the age of 50 yrs.

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.

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 re-

lieve 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, in whom it is often considered normal. Hair is seen as integral to a woman's attractiveness and femininity. While hair loss is generally regarded as normal in men, women are more likely to be concerned how noticeable it is to other people, and the ageing effect of thinning hair on the appearance.

There are various different causes of hair loss in women, and they must be established 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 reasons why hair loss occurs, helping them to focus on realistic treatment options and expectations to optimise treatment outcomes."

Hair Texture: Diameter and Density

The texture of hair is a result of both the thickness of the individual strands and the 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 its thickest at the age of 20, 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 about 50 μ m (microns) and because of its narrow size is most susceptible to breakage.

Medium hair has a thickness of 60-90 μ m and is the most common. Coarse hair is relatively strong with a thickness of 100 μ m or more.

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. It must be remembered that 50-100 hairs are shed normally every day and 10% of follicles will be in a resting stage at any one 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 will have a low density of hair, which remains straight along the length. The individual hairs are coarse and will give an appearance of thick hair. Ethnic African hair has a character-

istic and irregular curling along the length, which gives high coverage and the appearance of high density, yet it is of fine diameter. Caucasian hair is between these two extremes and shows great variation. People with blonde hair have the highest number of follicles and those with red hair have the fewest, although they will have coarser individual hairs.

Fine hair can be both a consequence and a predictor of thinning hair. Hair in an individual will tend to become finer before it is lost entirely.

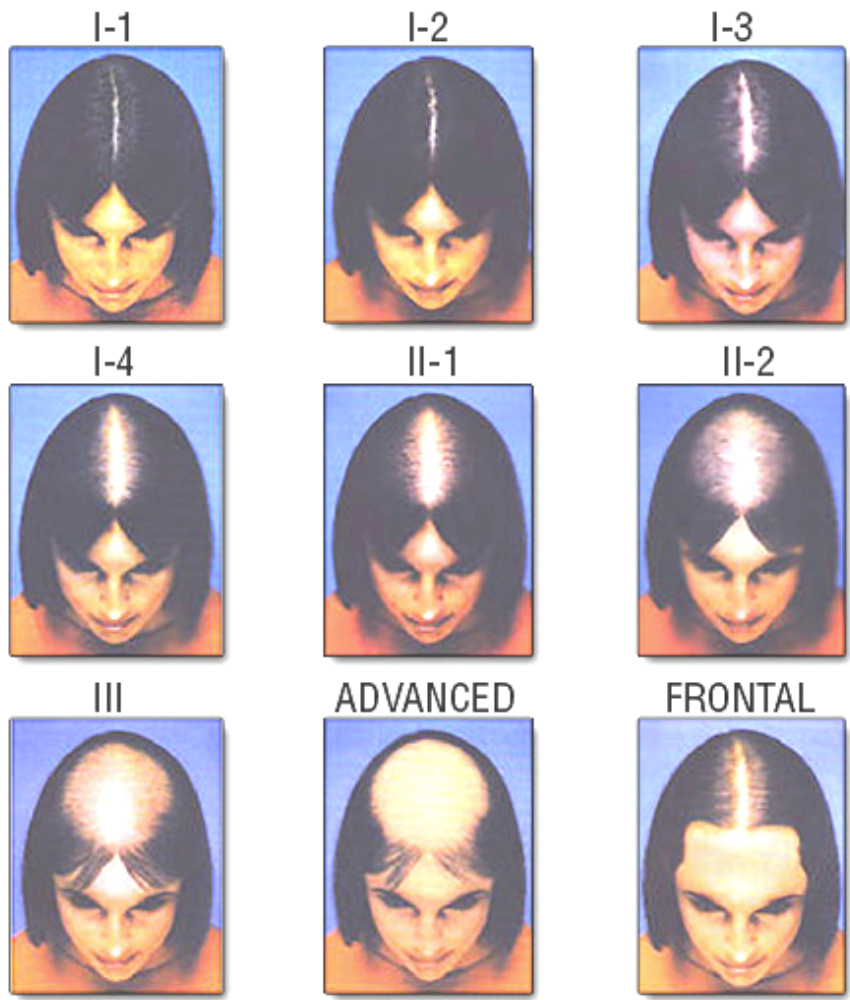
Stages of Pattern Hair Loss in Women

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.

Hair loss due to hereditary causes can start to occur at any time from teenage to 40 years of age. It can also be triggered by events in a woman's life, such as menopause, child birth, a trauma or major operation.





This patient had a family history of female hair loss, causing thinning of the frontal and temporal areas and recession of the front hairline, which became more noticeable after brow lift surgery. She achieved fuller hair and a better hairline with combined therapy and a hair transplant of 1500 grafts.

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 and onset of menopause and a set of blood tests.

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) which is 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 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 somewhere 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 hair 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 behavior 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. Total loss of scalp hair occurs with total regrowth after stoppage of drugs.

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



Before



After

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, 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 US 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 at the back of the head.

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.

For more information visit the website for the International Society of Hair Restoration Surgeons - 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>

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>

Part Four

Surgical Refinement and Specialty Hair Transplant

10

Plug Repair, Touch-ups, and Hairline Refinement

Thousands of men and women have undergone hair transplant surgery over the years. Many of these patients now have permanent hair growing in their once thinning areas. However, in the majority of earlier cases the hair restorations performed were less advanced in comparison with the hairlines we can create with today's technology and surgical techniques.

In earlier chapters we detailed and compared various surgical hair restoration techniques that have been used over the years. One of our objectives in sharing this information with you is to show why there is such a dramatic difference in the aesthetic appearances of older hair transplants against the new hair transplant.

Plugs

The standard surgical method to restore scalp hair was, until recently, a technique that transplanted large punches of hair follicles—commonly known as “plugs”—from the back of the head to the balding and thinning areas of the patient’s hairline. Some of these plugs contained tufts of 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, this hair transplant method produced noticeably unnatural looking results. The results were sometimes disparagingly referred to as the “Barbie-doll” or “corn-row” appearance.

Fixing Old-Style Hair Transplants

For many who thought they would have to live with the plugs from earlier surgery, we are here to give you hope. We want you to know that you can have a better, more natural hairline. Corrective surgery (plug repair) and refinements to hairlines are possible for patients who wish to enhance their plugs for a new, natural hairline.

Hair restoration surgeons skilled in using the new method of Follicular Unit Grafting, in combination with an artistic hair grafting approach and some creative ‘recycling’ of hair from the tufts, now 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.



The patient’s hairline after three sessions of follicular transplants: This patient was dissatisfied with the poor "pluggy" appearance that caused some embarrassment over the years. With follicular unit grafts we were able to fill in the between the plugs to achieve a more natural and acceptable appearance.

“Recycling” Hair Plugs

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 much 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.

Our 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.

11

Eyebrows, Eyelashes, Beards and Pubic Hair

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 fail to realize the full impact that eyebrows or eyelashes can make on the facial appearance

Eyebrows have been repaired with follicular units for years. In more recent time the follicular unit extraction and insertion has grown in popularity.

Patchy eyebrows and unattractive lashes are being attractively repaired with follicular unit extraction more and more.

Eyelash restoration surgery is performed with local anaesthesia and involves the transplantation of about 25 single hairs to each upper eyelid. Donor hair is taken from the back of the head and the grafts are divided into single hairs and the fat and skin are trimmed to make them very fine. The new lashes grow longer than usual and must be trimmed regularly.



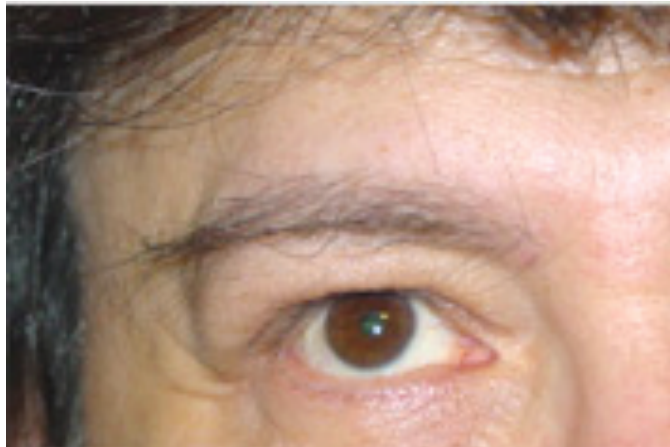
Eyebrow follicular unit hair eyebrow transplants.



After follicular unit eyebrow transplants



**A more acceptable appearance
to the brows with FUE.**





Before



After

Eyelash reconstruction restores function, improves appearance and elevates patients' self-esteem. There are several reasons for eye brow hair loss. Here several:

- Disease.
- Reshaping the brows with excessive plucking or obsessive compulsive plucking.
- Treatments such as chemotherapy.
- Genetics
- Accident or physical trauma.

Beards

Follicular Unit Extraction works well on face hair as well as in pubic areas. They can have a very natural appearance.



This young man simply had little hair for whiskers in this region of his face and chin. Now he does.



12

Results and Repairs



**Follicular and mixed
grafting techniques
offer an undetectable,
natural outcome**



Poor Results in the Past

A highly skilled transplant surgeon can also treat men and women who underwent surgical hair restoration procedures several years before. In fact, there are also recent transplant

patients who seek to improve upon 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, 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 underscore why it is necessary for you to do your homework before choosing your surgeon.

Sadly, there are men and women who have spent years (and large sums of money) in pursuit of their hair restoration goals and failed. Hair loss is a dynamic process. While the hair from follicles harvested from regions 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, we strongly encourage you to find a skilled surgeon who incorporates the Multi-Therapy approach to treat hair loss, and who consults with you extensively to 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 micrografting 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 **sited 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 in assuring successful hair restoration results.

For more information visit the website for the International Society of Hair Restoration Surgeons -

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>

13

Summary of Hair Restoration Surgery

The main advantages of follicular unit hair transplantation are greater hair coverage, a more natural appearance and undetectable surgery.

With the latest follicular unit hair restoration techniques it is difficult, if not impossible, to detect that the new hair is a result of transplant surgery.

We have described the options available and the results that the latest techniques in hair transplant surgery can offer. However it is important to seek expert advice and 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 Surgeons (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, and 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?

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.

14

Testimonials

15

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 state-of-the-art 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 micrografts, consisting of only 1-4 hairs. Follicular Unit grafts used today are far superior to the old plug method.

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. This 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 local 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 for the duration of the surgery due to anaesthetic. Patients are completely awake during the procedure hearing music or viewing the TV.

Q. Will I have general anaesthesia?

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

Q. How long is the procedure?

A. Surgery using the new transplant techniques described in this book usually lasts for approximately four hours. The length of the session depends upon how many grafts are being transplanted as well as the method.

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. However they return to other normal activities, including most jobs, immediately after surgery. We recommend having 3 days relaxation after the procedure. Since the patient is not sedate the he/she is able to do his routine work from the next day onwards.

Q. When can I resume my normal exercise program after surgery?

A. Patients should avoid strenuous exercise for 3-4 days after surgery, and avoid getting the recipient area wet for this time. It is also necessary to delay weight training for a week.

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 purpos-

es 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.

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 be fall out. This is normal. It takes approximately three 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.

Q. Can I perm, color 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.

Q. Does insurance cover a hair transplant surgery?

A. Not in most cases, but it is possible depending on the circumstances.

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 Laser Comb®. Rogaine® and HairMax Laser Comb® 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.

Part Five
Platelet Rich Plasma and
Hair Transplants

16

ACell + Platelet Rich Plasma Therapy for Hair Growth

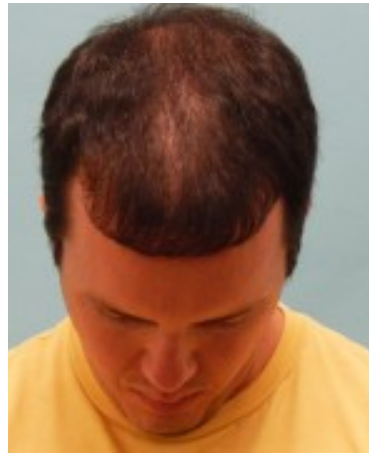
In 2012 two exciting combined hair growth and healing procedures were announced as effective. PRP (Platelet Rich Plasma) Injections and a product called ACell MatriStem. Acell MatriStem that is “porcine urinary bladder matrix, derived from pig bladder cells that have been proven helpful in wound healing. Doctors have searched for wound healing substances as long as man has been on earth. The ACell + Plasma has come to the forefront of the quest. For several years it has been at the forefront of research and application into hair cloning and hair follicle regeneration. It the most acceptable method of hair regrowth according to some of the most respected hair surgeons in the world.

At the 19th annual conference of the International Society of Hair Transplant Surgeons, ACell + PRP was shown to work as a remedy for hair growth. This combined formula, when properly injected into the scalp is a wound healer and jump starter for hair follicles ACell and PRP attracts” adult stem cells the wound can convert those cells into progenitor cells that, in the case of hair follicles, actu-

ally grow hair. A patient's own platelet rich blood is taken from the arm, spun in a centrifuge and then combined with the ACell and injected in a patient's skull. The result for most is new hair. This is not only an effective way to assist the hair follicles during a transplant procedure, it effectively helps in bear new hair in the process.



ACell – 1 year hair restoration



The results of combining ACell plus Platelet Rich Plasma as a formula for hair growth and follicular heading has had acceptable results. The initial results have been very encouraging for both men and women, and in combination with hair transplant surgery, or simply to increase the number of hairs for patients with thinning hair. The latest hair growing substances are for women who until now had few options for treating genetic hair

ACell's MatriStem® technology is a naturally occurring, non-crosslinked, completely resorbable, acellular material. MatriStem devices are unique from other scaffold technologies in that they fundamentally change healing by triggering abundant new blood vessel formation and recruiting numerous cell types to the site of injury for healing.

Highly skilled hair surgeons understand that these cells, including progenitor cells, have the potential to differentiate into numerous types of site-specific tissues.

During the healing process, the scaffold is degraded and completely resorbed, leaving new tissue where scar tissue would normally occur. This proprietary UBM scaffold technology has been used in a broad range of medical applications such as wound care, general surgery, gastrointestinal surgery, urology and plastic surgery.

17

Platelet Rich Plasma Therapy Injections

Platelet Rich Plasma is a process where a patient's blood is drawn, separated and concentrated through a process called centrifugation, and re-injected into the scalp. The PRP process concentrates useful cellular components of the blood and injects them into areas where the hair follicles and benefit from platelets in the blood.

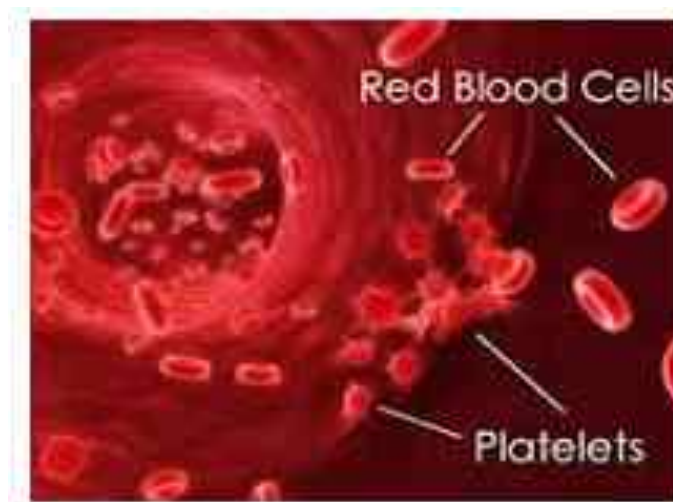
PRP therapy is an exciting new non-surgical therapeutic option for natural hair growth and stimulation. Hair surgeons offer this innovative scientifically based natural non-surgical hair restoration therapy either as part of the actual hair transplant procedure or as a supplement for hair growth.

What Are Platelets?

Platelets are biological constituents of blood, along with red and white blood cells. Unlike red and white blood cells, platelets do not have a nucleus and therefore do not qualify to be called “cells”. They are somewhat smaller than red and white blood cells.

Platelets are probably best known as components of the blood clotting system. When injury disrupts a blood vessel and causes bleeding, platelets are quickly activated and contribute to formation of a clot that stems the flow of blood.

But platelets are more than just first-line responders to bleeding injury. Every platelet is also a biochemical storehouse of regulatory, signaling and growth-factor molecules that participate in recovery and healing of tissue as well as emergency response to injury. Growth-factor molecules associated with platelets include:

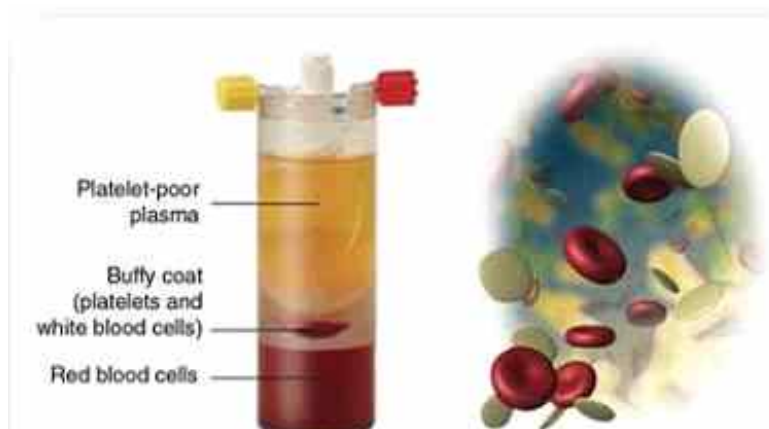


How PRP Is Made

Platelets for PRP are derived from a patient's own blood. Blood is withdrawn from a patient's arm by syringe, as it would be for any laboratory procedure.

The tubes containing withdrawn blood are placed in a centrifuge and spun for a period of time.

The centrifuging "spins down" the red and white blood cells and platelets and concentrates them at various levels in the tubes. Blood plasma that is rich in platelets is drawn off from the appropriate level. Plasma defined as platelet-rich plasma contains 4 to 8 times the number of platelets per cubic centimeter found in normal plasma. With a little additional preparation the PRP is ready for application.



PRP promotes hair growth from follicles by the action of platelet growth factors on hair follicle stem cells.

The platelet growth factors induce follicle stem cells to shift from a dormant state to an active state that starts the process of hair production.

To Reinvigorate Dormant Hair Follicles. Platelet growth factors can “wake up” dormant hair follicles and begin the production of new hair. PRP can be applied after scalp skin is slightly injured to induce platelets to release growth factors at the injury site. Enhanced hair growth and hair diameter was noted over the next few months

Safety, Complications, Contraindications to Use of PRP

The PRP/Stem cell treatment is completed in 1 hr, after that you can resume the normal activities. It is completely safe, painless and does not have any side effects. After the treatment no special precaution is needed.

Procedure of Injections of PRP

Step 1: Withdrawal of blood

A small amount of blood is drawn from an accessible vein in your hand after following sterile blood draw precautions.

Step 2: Preparation of Platelet Rich Plasma

The drawn blood is placed in a tube and spin in a centrifuge similar to this one depicted. The Platelet Rich Plasma is

separated from the other parts of the blood and drained off to be injected into the scalp.



Step 3: Local anesthesia

You will be lying comfortably on an operative table and the area is prepared for the procedure. The local anesthesia is injected with very fine size needle carefully. Ice packs are used to make the area numb so no pain is felt during the injection.

The Platelet Rich Plasma containing the reparative components is injected into the area of the scalp that is devoid of natural hair growth. This can be done essentially as an outpatient procedure. Scalp roller with 1mm fine needles

is subsequently used over the treated area to stimulate the stem cells as well as to increase the blood supply leading to better hair growth.



The injection process is done with a syringe and fine needle and is performed by the surgeon.

Step 4: Post procedural care

The hair is left unwashed post procedure at least for the next 24 hours with a head gear on. No bandages or dressing is required at the site if Platelet Rich Plasma is the sole protocol used.

The Return to Usual Physical Activities

Usually there is no time lag post procedure and can resume regular activities just after the procedure

- A sure shot solution to hair loss

- Relatively, the safest way to reborn hair
- Minimally invasive treatment
- Very few sittings
- Very little discomfort

The success of stem cell transplantation in hair restoration is that:

- promote natural hair growth
- stimulate the weak or aged follicle
- make hair follicle healthy and strong
- decrease inflammation
- stop the process of hair loss
- prevent from hair loss
- increase circulation to hair follicles
- improve thin and damaged hair
- strengthen the existing hair
- regenerate hair and make it healthy

About Doctor/Presenter Here

Biosketch here