



ISHRS Surgical Assistants Resource Manual

Originally compiled 2007 by SA Chair, Ailene Russell, NCMA.
Additions made by SA Chairs: 2008 Tina Lardner, 2009 Laurie Gorham, RN; 2010 Margaret Dieta.

Surgical Assistants Auxiliary Workbook

Dedication

This workbook is dedicated to the surgical assistants who take time out of their busy schedules to contribute their time and ideas into making this auxiliary successful. A special thanks to Victoria Ceh and her staff for all of their hard work into making each conference run smoothly year after year. This is also dedicated to the doctors who believe the importance of continued education of their staff. As the Surgical Assistants Auxiliary continues to grow, we hope more assistants feel compelled to contribute their ideas and support this special organization.

Ailene Russell, NCMA, Tina Lardner, Laurie Gorham, RN, Margaret Dieta

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Anatomy of the Hair Follicle

Parsley Hair Center

William Parsley, MD and MaryAnne Parsley, RN

Total Body Follicles- 5 million

Total Scalp Follicles- 100-150,000

Growth Rate (scalp) - 1.2 cm/month
- 1.0 inch/3 months

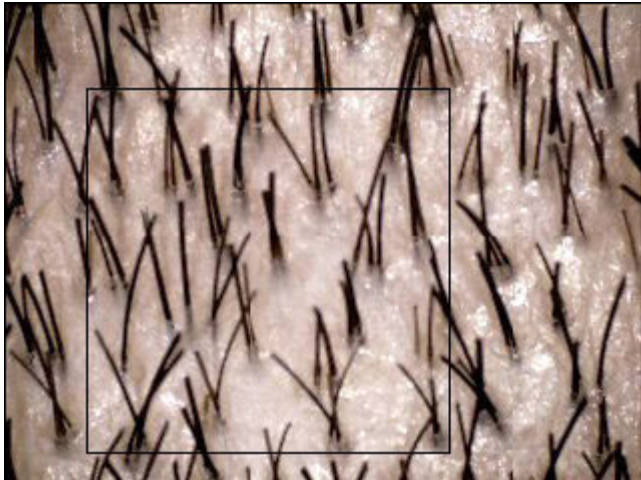
Density (scalp) - 80-120 FU/cm²
- Average of 2.5 hairs/FU

Mean Hair Shaft Diameter (scalp) - 70μ

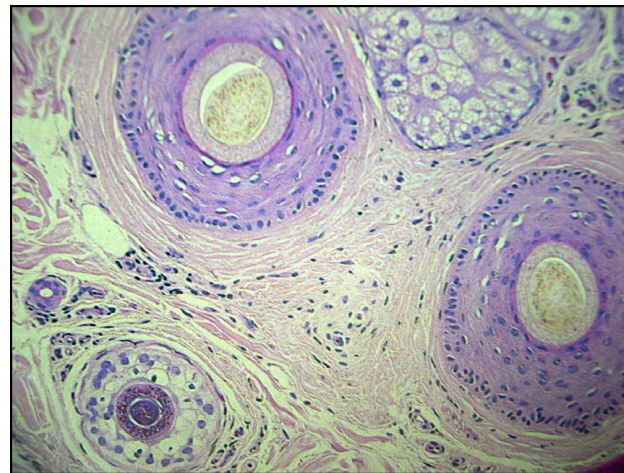
HAIR SIZE

- **Terminal:** Long and thick (>60 microns)
- **Vellus:** Short (less 1 cm), thin (<30 microns), hypopigmented
- **Indeterminate:** Hairs intermediate in size

NOTES:

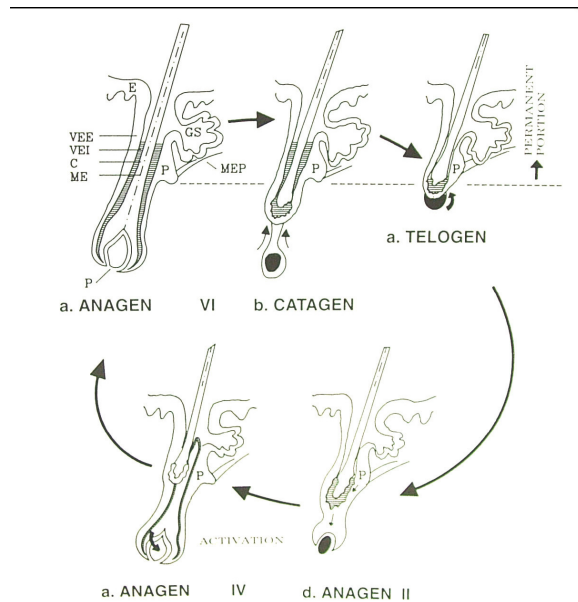


There are 7 terminal hairs for every one vellus hair (Whiting): 14 percent of hairs are vellus and 86 are terminal



Notes: _____

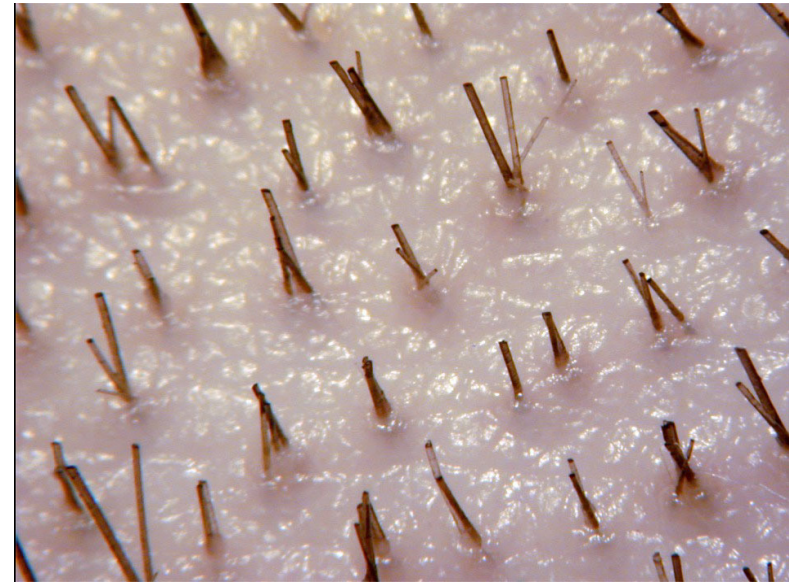
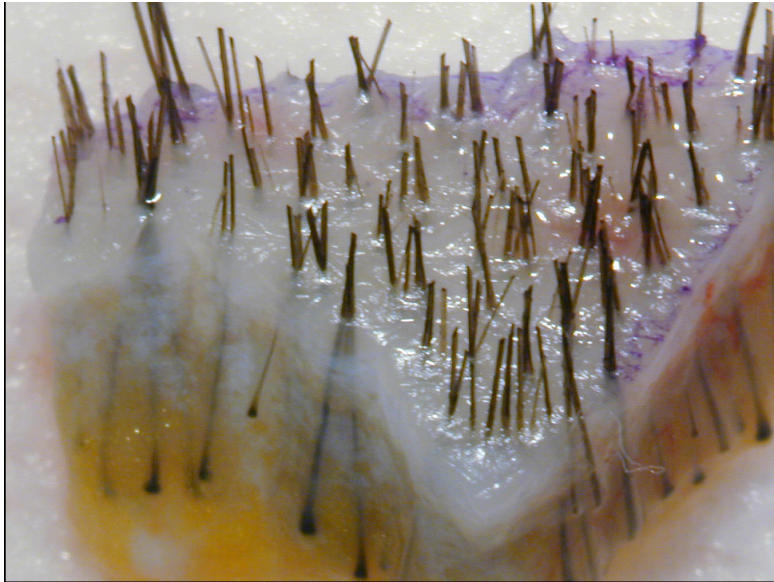
Hair Cycles-scalp



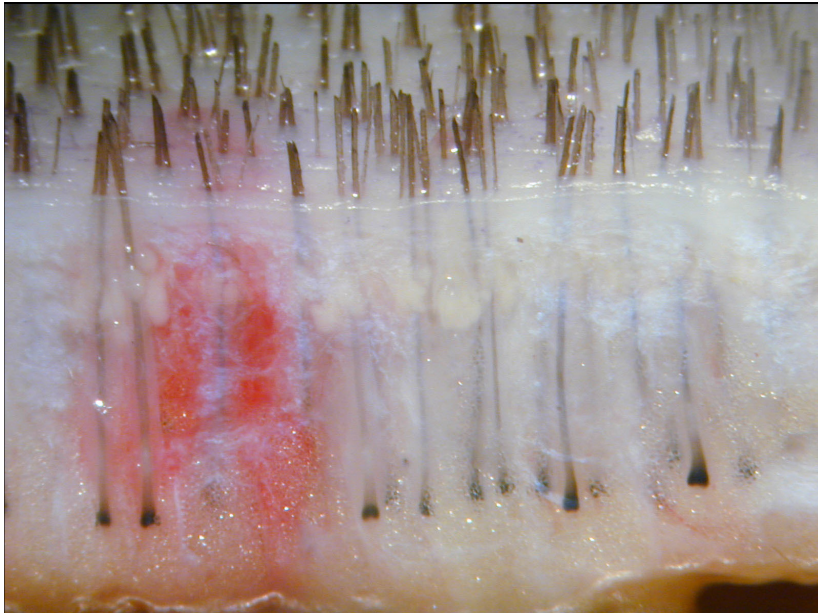
- **Anagen (growth)**
2-6 years
- **Catagen (transition)**
2-4 weeks
- **Telogen (resting)**
2-4 months

Trichology-
Camacho & Montagna

Notes:



Notes:



Notes: _____



Notes:



Notes: _____



Notes: _____

Using The Massager During Local Anesthesia Administration

Submitted by Laurie Gorham, RN
National Nursing Manager
Bosley

In our offices we utilize a small hand held massager when administering the local anesthesia. The vibration of the massager as it is pressed against the area as close to the injection site as possible will help distract the patient from the feel of the injection. Using a solution of 1% Lidocaine buffered with Sodium Bicarbonate place the tip of the needle on the lowest edge of the clipped area in the donor site and inject small wheals, approximately 2 cms apart continuing left to right. At the same time place the massager as close to the injection site as possible following along each injection site. Slow infusion causes less discomfort. Continue to re-inject superficially into the initial injection sites, reinforcing the same wheals. Test the area to ensure numbness. Inform the patient that he/she may feel pressure and hear a crunching sound but should not feel any pain or sharpness.



Notes: _____

Administering Local Anesthesia In The Donor Area

Submitted by Laurie Gorham, RN

National Nursing Manager

Bosley

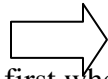
Begin injecting on the left side of the donor area. Hold the massager as close to the tip of the needle as possible.

First Pass



Inject initial wheals of anesthesia into the lower line of the donor area spaced evenly along the area.

Second Pass



Inject into the first wheal facing the needle to the right. Continue injecting at the edge of the infiltrated anesthesia across the entire donor area. Never inject into an area where anesthesia has not infiltrated.

Third Pass



Inject in an upward direction all along the donor area.

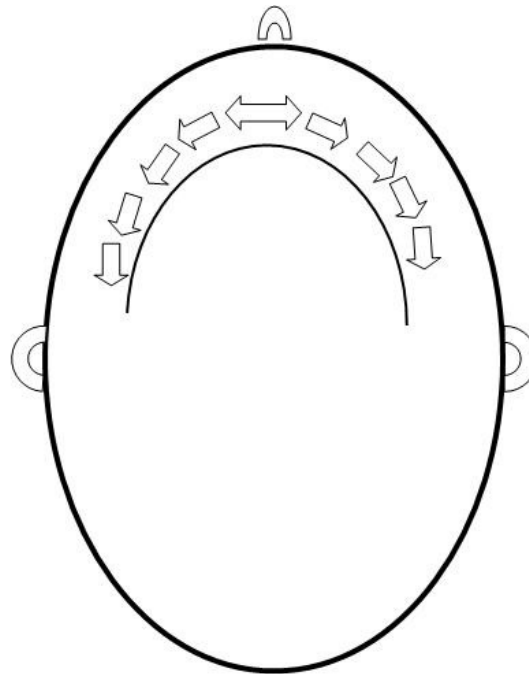
Fourth Pass (optional)



Inject intradermal wheals, blanching out the skin along the middle area of the donor strip.

Notes: _____

Administering Local Anesthesia to the Recipient Site
Submitted by Laurie Gorham, RN
National Nursing Manager – Bosley



First Pass

Begin injecting in the mid portion of the recipient site hairline using the tip of the patient's nose as a landmark. Inject to the left along the drawn line approximately 5 millimeters in front of the line. Hold the massager as close to the tip of the needle as possible. Continue injecting into the edge of the infiltrated anesthesia to the end of the line. Repeat this on the right side.

Second Pass

Repeat injecting along the left side of the line, continue same on the right.

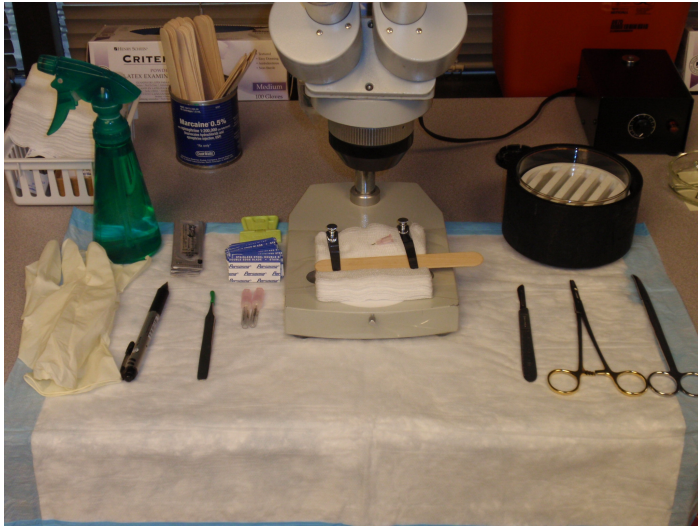
CUTTING STATION SET-UP
Dr. John Gillespie: Calgary, AB Canada
Submitted by: Kathryn Lawson



Notes:

MICROSCOPE STATION SET-UP
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner

SLIVER STATION



Sliver station consists of: spray bottle, #10 Personna scalpel blades, blade holder, double-edge prep razor blade, Petri dish for slivers, scissors, pen and needle.

CUTTING STATION



Cutting station consists of: quad Petri dish (labeled for 1's, 2's, 3's & 4's), Petri dish for slivers, tongue blades (one soaked in saline and the other wrapped with plastic film to hold saline bubbles), jeweler's forceps, double-edge prep razor blade with handle, timer, calculator, pen and count sheet.

Notes: _____

CUTTING STATION
Lam Institute for Hair Restoration: Plano, TX U.S.A
Submitted by: Emina Karamanovski



The inclined table (at 20-30° angle) provides an ergonomic cutting position for the long hours of graft dissection. As substitute for microscopes, a fluorescent light (three side illumination) with a magnifying lens (3x or 4x magnification) is used because the lens give sufficient magnification for fine dissection, its size allows easy visibility of both, the focused and peripheral fields, and the fluorescent light gives cool, bright and without shadow illumination.

The instruments used for graft dissection are: tongue depressor, soaked in saline solution for a minimum of 30minutes before cutting, as a cutting surface, jeweler #3 forceps to hold the tissue, Personna double edge blade to sliver Caucasian and Asian hair baring tissue and Personal Prep blade, bent to match the curve found in African American donor tissue, Personna #10 blade and a blade handle for trimming and dissecting grafts/follicular units

To keep tissue moist and viable during dissection, a fine-spray bottle filled with chilled saline solution is used. This type of bottle sprays saline in small, focused field providing desire moisture without making the entire cutting surface wet.

Notes: _____

Graft Preparation

Submitted by Laurie Gorham, RN
National Nursing Manager – Bosley

Graft preparation is an integral part of the hair restoration procedure and the process is divided into two phases – slivering of the donor strip and trimming of the individual grafts from the slivers – are completed with the use of the stereo microscope. The importance of graft hydration and proper handling of tissue throughout this process will be described.

Slivering: The donor specimen is placed under the microscope and secured to the trimming board with one or two needles. Keeping the specimen and the slivers wet at all times is of the utmost importance. Wrap the specimen in a saline soaked 3x3 gauze sponge and periodically re-wet the sponge as the slivering process continues. Slivers are placed in iced normal saline as soon as possible to maximize hydration.

A sliver should always be grasped at the epidermis with the forceps. It should never be grasped by the follicle or at the midsection. Gentle handling prevents injury to the follicle. The other hand (typically the dominant hand) holds the blade. Slivers are created by holding the strip steady with the forceps applying gentle pulling traction and gradually dissecting down across the width of the donor strip always following the direction of the hair. The blade is gradually advanced until one whole follicular unit-wide piece is separated from the remaining donor strip. This process continues until the entire strip or section of tissue is slivered.

Trimming: Graft trimming is the next phase in the preparation process. Magnification is mandatory and performed with the aid of the stereo microscope. Slivers are laid on their side on the trimming board. To prevent injury to the follicle, grasp the sliver by the subcutaneous fat; do not grasp by the bulb or at the midsection. Gentle handling of tissue is critical. Using a forceps to grasp the tissue, the follicular unit is dissected from the sliver. Personal preference will dictate the blade utilized to complete this step. Strait edge blades, #10, and #11, are the most common choices. To prevent desiccation (drying) of the follicle, grafts must be kept wet at all times. All trimmed grafts should be tear-drop-shaped with enough tissue remaining for placers to have something to grasp as they place the grafts. The follicle should not be exposed.

Notes: _____

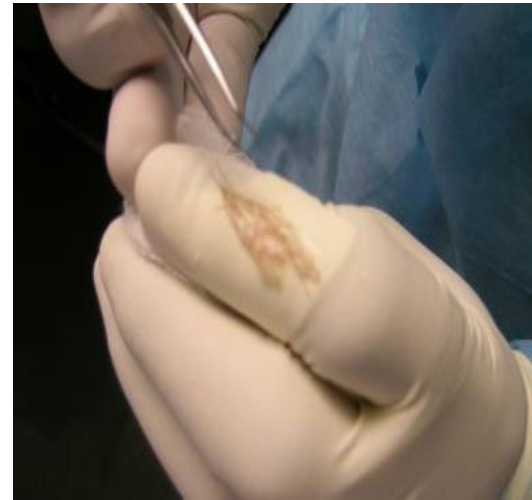
Pearls of Wisdom

Pomerantz's Office:

- **Epi – Reinject for oozing and to control blood flow**
- **She uses herbal medications also**
- **And suggests frequent breaks – to stretch, move and refocus.**

Notes:

Using Microfoam Tape While Planting
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner



- **3M Microfoam Surgical Tape (#1528-1, 1" x 5 ½ yds)**
- For added protection for our planters, we place Microfoam tape on the planter's finger where grafts are placed. It can be placed under the glove or on top. In case the patient moves suddenly, the tape is thick enough to protect your finger from sharp forceps. You can even create a lip with the tape by folding one end and then sticking it to your glove. The lip creates a small basin for keeping grafts moist. It's a lot easier to use than the metal graft holders you place on your finger.

Notes:

Compression for the Prevention of Post-Surgery Edema
Dr. James A. Harris: Greenwood Village, CO U.S.A.



- 3M Microfoam Surgical Tape (#1528-1, 1" x 5 ½ yds)
- Mastisol Liquid Adhesive

We got this tip at the conference in Vancouver and have been using it ever since. The tape is used to provide compression to prevent post-surgery edema. We use the tape in addition to icing the forehead and intra-operative Depo-Medrol. A six-inch piece of tape is cut in half length-wise, because the one-inch tape is too wide. For extra hold, we apply Mastisol Liquid Adhesive to the patient's forehead about half an inch below where grafts are to be placed. Wait a few seconds for the adhesive to get tacky. Starting at one side of the head, place the tape on the patient's forehead and stretch it across to the other side and hold for a few seconds. Remove excess tape. We tell our patients to keep it on for three days when edema is most likely to happen. Wearing a hat easily conceals the tape.

Pearls of Wisdom from Cooley's assistants



We have found that if we make small piles of grafts by hair #'s while cutting, it is easier to keep an accurate count. The grafts are then transferred into Petri dishes with Reston foam adhered to the bottom of the dish. The cutters line the grafts up across the dish in rows of 1's, 2's, 3's, 4's.

Pearls of Wisdom from Cooley's assistants

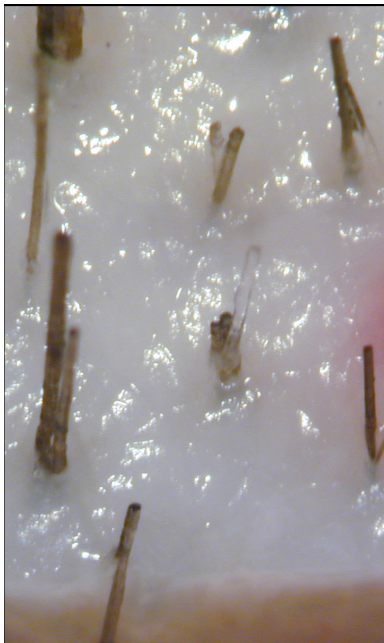


We have a small refrigerator in the surgery room to store slivers/grafts. This keeps the temperature more controlled while they are waiting to be dissected and it makes the tissue easier to sliver and cut.

Pearl for Gray Hair by MaryAnn Parsley, RN

- Use Just For Men Hair, Mustache and sideburn hair dye.
- We prefer the Jet Black or Dark Brown color.
- This helps visualize the hair in slivering as well as in preparing the grafts.
- It helps with planting the grafts. You can readily see which end is correct in placing.

WHITE HAIR



Gray hairs are transparent





GRAY HAIR



Notice the difference in the dyed hair versus the non-dyed hair





Note how hard it is to visualize the hair; particularly the follicle



PLACING TECHNIQUES

Bosley, U.S.A.

Submitted by: Laurie Gorham, RN



Push Technique: Using a 45 degree, angled or straight forceps, the graft is gently pushed with the hair pointing forward.

Dr. James A. Harris: Greenwood Village, CO U.S.A

Submitted by: Tina Lardner



Pull Technique: Using a 45 degree, angled forceps, the graft is gently pulled into the site with the hair pointing forward.

Notes:

IMPLANTING GRAFTS

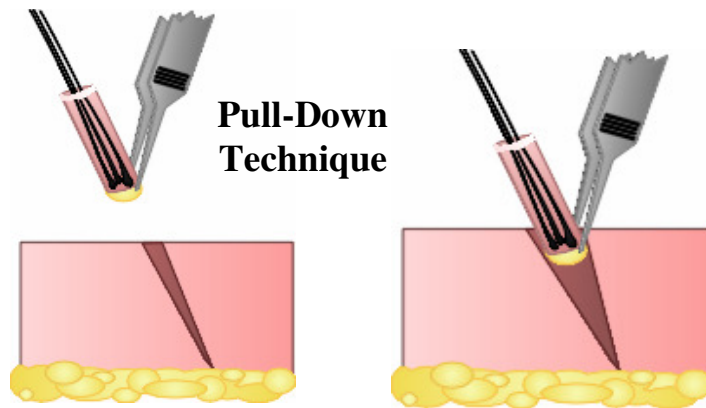
Submitted by: MHR

Patrick Tafoya Director of Educational Services

The implanting of grafts into its recipient sites is a crucial step in attaining a successful hair transplant. The act of inserting a “live” section of tissue into a small opening with a sharp, metal instrument is a very delicate maneuver and can be a deciding factor in determining the outcome of the entire procedure. All the care and attention given to planning the appropriate hairline, harvesting and dissecting grafts, and making recipient sites can be minimized by poor technique of implantation.

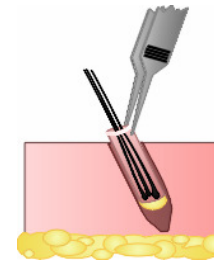
The most common results of poor technique are loss of growth due to crush injury, drying out, severe local inflammation due to “piggy-backing” and upside-down grafts, folding of grafts, and grafts that are “too-deep” or “too-shallow”. These complications can be prevented with training and practice of proper implanting technique. Though one technique is not superior to the rest, the assistant can learn to prevent complications by following a few guidelines to proper implanting.

Two basic principles, the “**push-down**” and the “**pull-down**” maneuver can categorize graft placement. All other techniques are variations of these principles. Normally, a combination of the two techniques is utilized for implantation. Avoid squeezing the grafts with the forceps to prevent “crush” injury. After placement, if a graft slips below the skin surface it can produce an epidermal cyst, follicular abscess, or a bouquet formation.



**Pull-Down
Technique**

**Push-Down
Technique**



While implanting it is critical to keep the grafts **moist and chilled**. Only place the number of grafts on your glove you can implant in **two** minutes (1-hair grafts) and 3 minutes for all other grafts. **A graft sitting outside of moisture will die in TWO minutes.**

Do Not place the grafts on your glove without a source of moisture; otherwise the grafts will dry out and die.

[illegible]

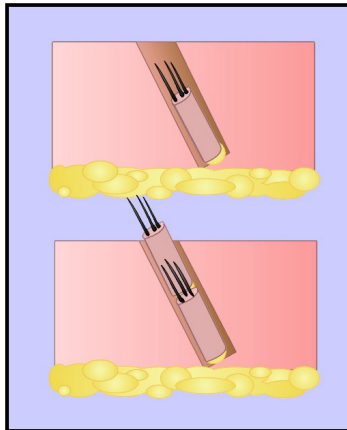
IMPLANTING GRAFTS

Submitted by: MHR

Patrick Tafoya Director of Educational Services

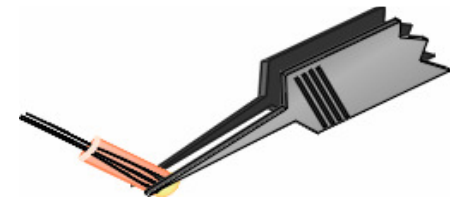
The frontal hairline is a particular area, and, therefore, only grafts containing one hair should be placed in that area. The MHR physician determines the amount of one-hair grafts required for the front line. Make sure you follow the correct direction, as well as the angle of the hole when placing. Handle them with care. If you still have some grafts in the dish and apparently no holes, clean and dry the recipient site again, and look for them. If you still cannot locate them, call the doctor.

DO NOT SQUEEZE FOLLICLES

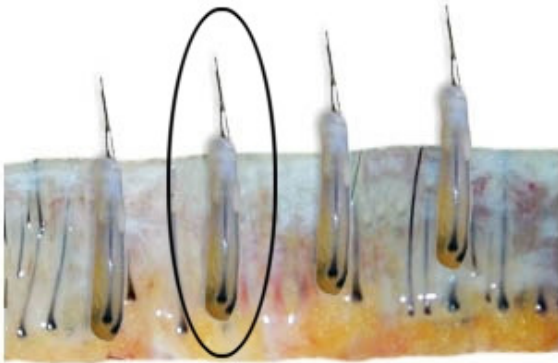


“Too Deep”

“Piggyback”



The recommended level
of implantation.



Always keep a small portion of the graft slightly above the contour of the skin to prevent “pitting” or an “icepick” scar formation at the base of the hairs.

PLACING TIPS

Gillespie's Office:

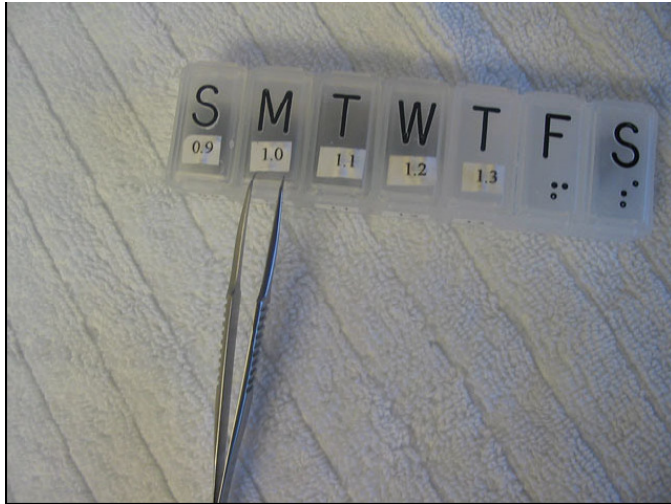
- I find it really helpful when we use team work and check each others work. Mostly I find it helpful when planting. Sometimes at different angles you see an open hole, or space that needs to be filled in. As a team we have to remember that it is the patient's head we are working on, and it's not a matter of not doing your job. It's all about quality control.
- One practice that we find very valuable to us here is that once our technicians have cut a number of grafts they talk with each other and come to an agreement on what size sites that are needed. They relay this info to the surgeon and then he will make a few sites and one or several of the techs will actually place several grafts to test the size and depth and angles of the sites. This has really been helpful to all concerned and makes the placing of the grafts a smoother experience.
- We know from experience that not all offices utilize this practice. It really does help.

Notes:

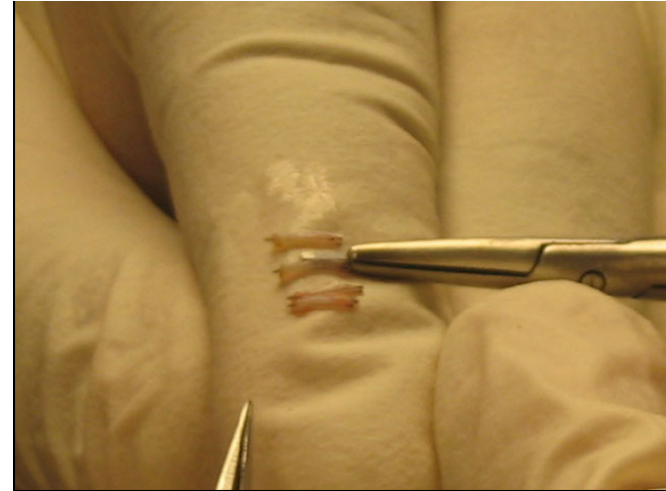
Custom-made Blades
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner



Dr.Harris custom-makes the blades used to make recipient sites. Each blade is made to fit the grafts we are placing. He uses the Cutting Edge Blade Cutter to cut the blades into various sizes ranging from 0.9mm to 1.2mm. The pre-cut blades are stored in a weekly pill sorter labeled with the size of the blade. We use the Ellis Blade Handle to hold the blades. Typically, we have two different sized blades: one used for the 1's and 2's and the other for the 3's and 4's. When it comes time to make recipient sites, we will pick an average size graft from the 4's and 2's. Dr. Harris will measure depth and width. He will do a test site to see if the grafts fit into the site. He will then make any adjustments if needed.



Pill Sorter to store the blades



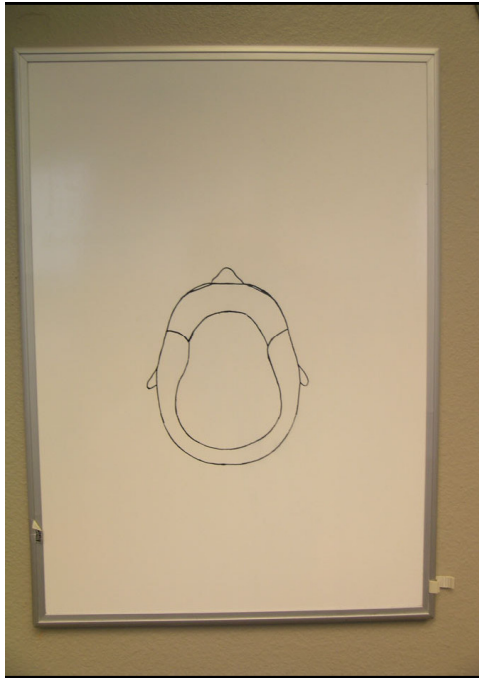
Measuring width and depth of follicular unit grafts



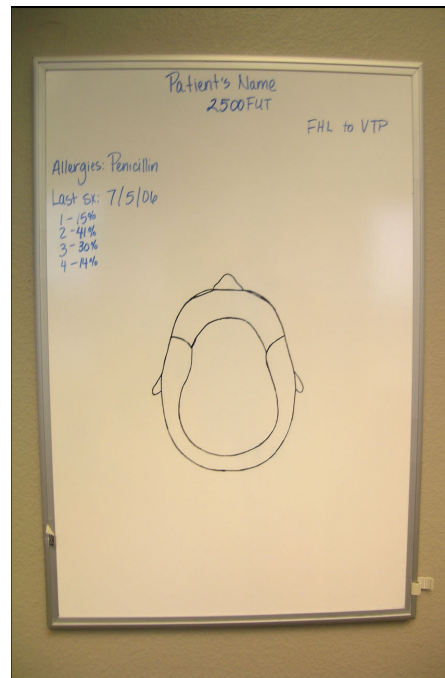
Testing site to see if grafts fit in width and depth

WHITEBOARD FOR PLACING PLAN
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner

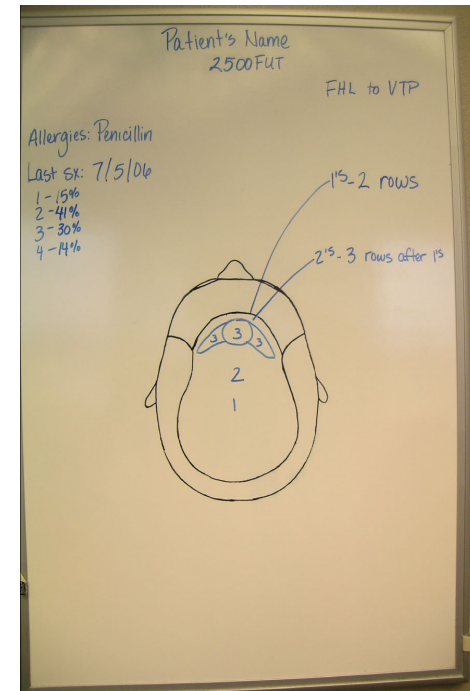
We have a white board with a permanent drawing of the top of the head in each operating room. When it comes time to start placing, the planting plan is written on the board with a dry erase marker. We can also write down anything pertinent to the case such as, allergies or stats from last surgery.



Whiteboard with permanent drawing



Patient's stats



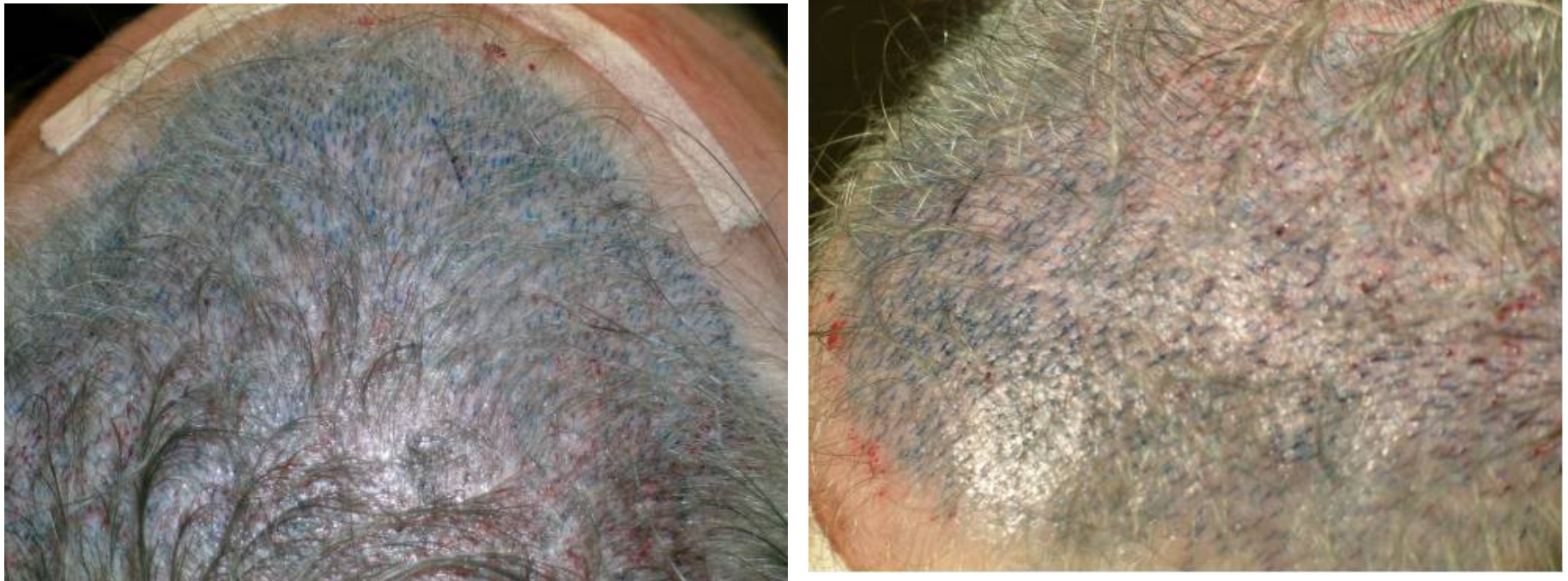
Patient's Placing Plan

Notes: _____

USING METHYLENE BLUE TO SEE HARD TO SEE SITES

Dr. James A. Harris: Greenwood Village, CO U.S.A.

Submitted by: Tina Lardner



If there is no bleeding and sites are hard to see, sometimes we will use methylene blue. We will saturate gauze with methylene blue and rub side to side on the patient's sites. After a couple of minutes, use gauze with rubbing alcohol to remove excess stain on the surface. Spray head with saline to remove any remaining stain and alcohol. The stained sites will last throughout the surgery and are usually gone by the next day.

Notes: _____

SURGERY TRAY SET-UP

Dr. Michael Beehner's Office
Sarasota Springs, NY U.S.A.
Submitted by: Betsy Shea



Dr. James A. Harris' Office
Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner



Dr. John Gillespie's Office
Calgary, AB Canada
Submitted by: Kathryn Lawson



**Surgical tray consists of: needle holder, 3-0 plain
Gut sutures, towel clamp, modified towel clamp,
Disposaject (filled with saline), #10 blade with
handle, forceps with teeth, 8 hemastats and scissors.**

Notes: _____

SURGERY TRAY PACK
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner



Our surgery pack includes: a needle holder, small scissors, 8 hemastats, scalpel holder, modified towel clamp (used with rolled up gauze to hold wound closed), forceps with teeth, and an unmodified towel clamp. Everything is packed for sterilization in a 7 1/2" x 13" pouch.

Notes: _____

PATIENT PREP TRAY
Dr. James A. Harris: Greenwood Village, CO U.S.A.
Submitted by: Tina Lardner

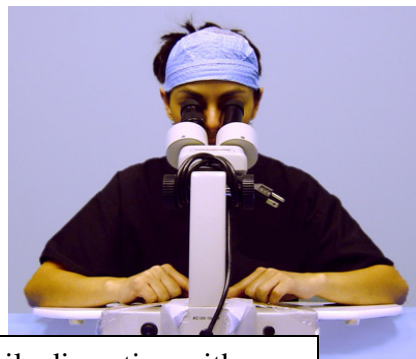


Our prep tray consists of: Lidocaine warmer, gauze, micropore tape, small basket (needles, marcaine, and calculator), template, scissors, comb, ruler, permanent marker, densitometer, tourniquet, valium syringe, saline syringe, injection site, 22g I.V. catheter, and four metal syringes (lidocaine and marcaine).

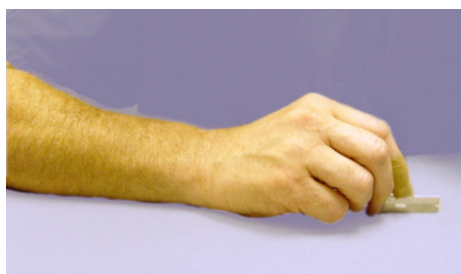
ERGONOMICS

Submitted by: MHR

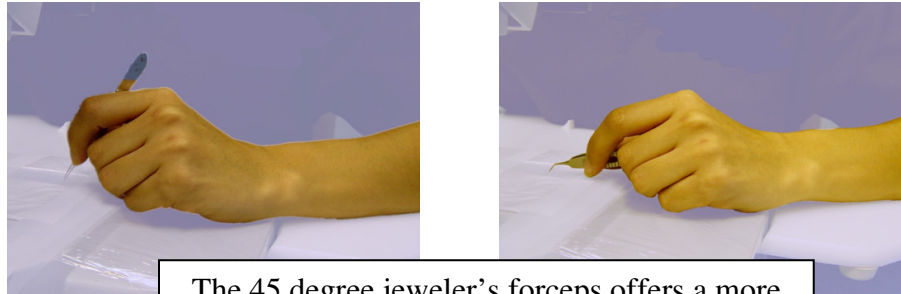
Patrick Tafoya Director of Educational Services



Correct position while dissecting with binocular microscopes.



The single edge Personna blade offers a more neutral wrist position than the scalpel blades.



The 45 degree jeweler's forceps offers a more neutral wrist position than the straight forceps.

It is recommended to utilize the **Personna single edge blades** and the **45 degree Jeweler's forceps** for optimum ergonomic positioning while dissecting hair grafts.

Notes:

ERGONOMICS
Submitted by: MHR
Patrick Tafoya Director of Educational Services

Ergonomic tips for the Dissecting Microscope

- Take appropriate breaks.
- Every 15 minutes, close your eyes or focus on something in the distance.
- Every 30-60 minutes, get up to stretch and move for approximately 30 seconds.
- Use a chair that provides good back support.
- Sit close to your work surface.
- Remove false fronts/supplies from under the bench work area.
- Avoid leaning on hard edges.
- Pad forearms and edges.
- Keep elbows close by your sides.
- Work with wrists in straight, neutral positions.
- Adjust your chair, workbench, or microscope as needed to maintain an upright head position.
- Elevate, tilt or move chair to edge of the counter to avoid bending your neck.
- Keep scopes repaired and clean.

Notes: _____

CUTTING TIPS

Gillespie Clinic:

- When I am training a new technician I remind them to stop after one hour of cutting and count their grafts and then take a 5 minute break, it is like rebooting a computer, they come back feeling refreshed and they find that their count increased on the second go round. I use the break interval for placing too. It can be intimidating for new techs when they see how fast and how many grafts we cut. I remind them that it all happens in time; quality is the most important ingredient.
- All of our teams utilize a small timer in each room. They set the timer at 15-20 minute intervals and when it goes off, everyone performs a brief stretching routine of the fingers, wrists, shoulders, neck etc. We even rest our eyes and take them away from the microscope for a few seconds. This practice helps to remind everyone to stretch and change position. It's easy to get into a zone and trim for hours; which only lead to injuries. We also have little foot massagers and hand held back massagers in all of our offices and some even have a hot wax unit for dipping those tired hands! The team loves it!

Notes:

Guidelines for Quality Control

**International Society of Hair Restoration Surgery,
17th Annual Scientific Meeting
Amsterdam, Netherlands, July 22-26, 2009**

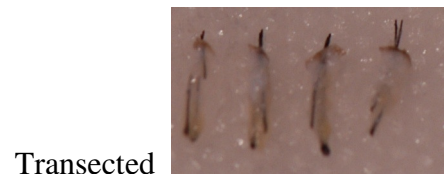
Being an excellent hair restoration assistant depends on an individual's capacity for critical thinking and self-monitoring in regard to providing and maintaining quality work. The most challenging part of achieving excellence in hair restoration is not the technique but the lack of experience and knowledge required to provide and maintain consistency in quality. There are two points of quality control: 1) intra-operative and 2) post-operative.

1. Intra-operative quality control preformed by evaluating "quality" factors during graft dissection and placement
2. Post-operative quality control achieved by "reading" the hair growth results, recognizing the cause-effect relationship, and knowing the corrective action for each scenario

EVALUATING "QUALITY" FACTORS

Regardless of whether microscope or loupes are used to dissect grafts and regardless of what type of instrument is used to place grafts, the quality of work should be paramount. The following are factors to consider:

- **Graft Dissection**
 - Clean vs. transected hair shaft



- Skinny vs. chubby graft

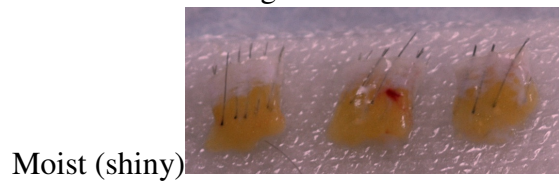


Skinny

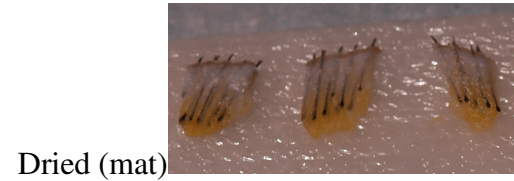


chubby

- Moist vs. dried graft



Moist (shiny)



Dried (mat)

- **Graft Placement**

- Proper manipulation vs. trauma
- Appropriate fit – graft size vs. site size
- Appropriate placement depth – correct vs. too deep or too shallow
- Correct vs. incorrect hair direction/orientation

“READING” THE HAIR GROWTH RESULTS

- **Insufficient hair density**

- Poor growth
- Sites spread out, not evenly distributed
- Site angle obtuse or perpendicular to the scalp



- **Poor growth caused by the error in**

- Graft dissection (transection, trauma, desiccation)



Slivers dried and transected

- Graft placement (trauma, desiccation, too high placement vis-à-vis the level of the scalp)
- Insufficient blood supply (round empty area)

- **Unnatural hair growth**

- Kinky hair (caused by trauma inflicted to the hair follicle)

- Pitting (grafts placed too deep)



- Compression (grafts too big for the recipient site – transplanted hair squeezed)



- Hair difficult to style (hair curl does not match natural direction of the hair)



ASSISTANT PRE-PATIENT TRAINING
Lam Institute for Hair Restoration: Plano, TX U.S.A.
Submitted by: Emina Karamanovski

The result of hair restoration surgeries highly depends on the assistants' skillfulness in graft preparation and graft placement, yet their training is somewhat challenging. Pre-patient training is designed to develop skills, awareness and judgments required for quality graft preparation and placement without the risk and/or pressure of learning on a live patient.

Proper graft preparation and placement are critical to attain uniformly excellent results and developing those skills goes beyond hand and eye coordination. There are two characteristics that set apart a hair transplant assistant from any other surgical assistant: manual dexterity and mental aptitude for tedious work.



Graft dissections: **1.** Take foam that is firm yet easy to cut, such as the foam used to separate toes while toe nail paining. From this foam, cut strips that would represent the width and length of the tissue usually dissected such us 1cm x 5cm. Take a black marker and paint one side of the foam to indicate where epithelium would be on the live tissue. (Photo 1) **2.** Take a tongue depressor, a forceps, and a blade for slivering. Set up the cutting station as usual.

Photo 1

Notes:

Continued...



Photo 2



Photo 3



Photo 4

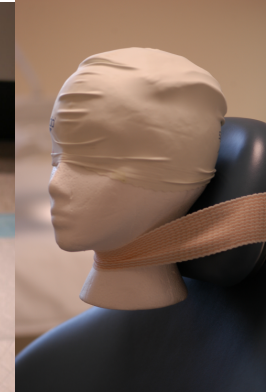


Photo 5

Graft Placement: 1. Take Styrofoam head, reusable clay (to provide the soft layer for grafts to be inserted), swim cap (to hold the clay on the Styrofoam head, prevent clay from sticking to the trainees' hands), ice bandage (to secure it on the patient's chair) 2. Take placing forceps that are used in your office, 16G needle, foam-grafts, compresses (to develop dabbing motion and habit). (Photos 2, 3, 4, 5)

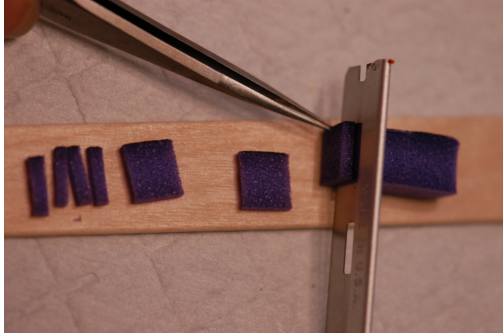


Photo 6

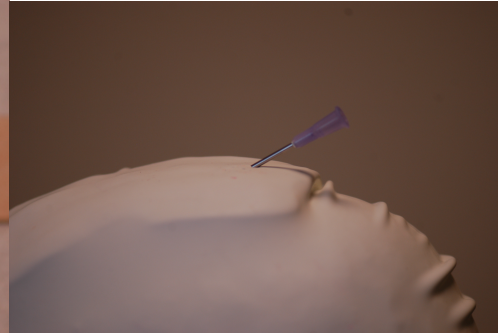


Photo 7



Photo 8

Training: First 2 days; 2-hour training– graft dissection only 15-20 minutes training and discussions (photo 6). Second 2 days; 3-hour training – time divided between graft dissection and graft placement 30 minutes training and 15 minutes discussions. Fifth day, 4-hour training - time divided between graft dissection and graft placement 45 minutes of training and 15 minutes discussions (photos 7, 8).

Notes: _____

TEACHING/TRAINING

Gillespie's Office:

- **When I am training a new technician I remind them to stop after one hour of cutting and count their grafts and then take a 5 minute break, it is like rebooting a computer, they come back feeling refreshed and they find that their count increased on the second go round. I use the break interval for placing too. It can be intimidating for new techs when they see how fast and how many grafts we cut. I remind them that it all happens in time; quality is the most important ingredient.**

Notes:

Example: Dr. John Gillespie's Office
PRE-OPERATIVE INSTRUCTIONS FOR HAIR TRANSPLANT SURGERY

Please follow the instructions below prior to your procedure with us. We want your experience to be as comfortable as possible. The steps listed below play an important role in the process.

One Week Prior to Surgery

1. Avoid Aspirin or Aspirin-like products (Advil, Ibuprofen etc.), as well as Vitamin E. These products are blood thinners and may promote bleeding during surgery. If needed, you may take Tylenol.
2. Keep those locks long! The donor area is easily covered if hair is left long prior to surgery. (1 inch is an adequate length)

Day Prior to and Day of Surgery

1. Please do not consume alcoholic beverages 24 hours before your procedure. Alcoholic beverages act as blood thinners and may also affect bleeding during surgery.
 2. Wash your hair with **Tersaseptic** skin cleanser **or other antibacterial skin cleanser** the **night** before and **the morning of surgery**. Do not use hair spray or gel. Tersaseptic is available at most pharmacies in Canada.
 3. Dress comfortably. Please wear a button-up shirt - *do not wear clothing that must be pulled over the head.*
 4. Please eat a light meal before surgery. We provide refreshments and lunch during the procedure, but it is important that you have had some food prior.
 5. If you wish sedation prior to surgery, *you may not drive*. Please arrange for transportation to and from the clinic.
-

Please call us at 259-6798 or toll free at 1-800-461-2220 if you have any questions regarding this material.

Example: Dr. John Gillespie'
POST-OPERATIVE INSTRUCTIONS FOR HAIR TRANSPLANT SURGERY

Please follow the instructions below after your procedure with us. We want you to be as comfortable as possible with caring for the donor and transplanted areas when you are at home. Always begin with a proper meal after surgery and then follow the steps listed below.

Swelling & Pain Prevention:

1. Icing may prevent swelling. Once at home, apply ice packs to the top of your head for 15-20 minutes, as often as possible on the day of surgery as well as the following day. Before applying the ice pack, place a warm, damp cloth over the head and place the ice pack on top. Should swelling occur, it will be at its peak on days 3-5 post op.
2. Wearing a sweatband for several days may help to reduce the swelling of the forehead and eyes. Begin wearing the sweatband the day after surgery - wear it almost continuously. We have included a sweatband in your home pack.
3. If discomfort or pain should occur, please take the pain pills as prescribed.
4. If there is any bleeding of the donor sight the night of surgery, it is usually controlled by applying firm pressure for ten minutes. *If the bleeding continues, please call us at the office or the after hours number listed below.*

General Activity:

1. While sleeping for two nights after surgery you may wish to cover your pillow with a towel.
2. Moderation in physical activity is recommended for the first week after surgery. Avoid heavy lifting and anything that increases your blood pressure.
3. If a graft should pop out, dab the area gently to stop any bleeding and discard of the graft.
4. Avoid swimming in a pool for a week after surgery.
5. Continue to keep your hair clean and avoid sunburn.

Removal of Stitches:

1. Stitches will be removed 9 – 10 days after your surgery.

If you have any questions or concerns after surgery please do not hesitate to call us or After office hours, contact Dr. Gillespie at home: 403-252-1353

Please call us at 259-6798 or toll free at 1-800-461-2220 if you have any questions regarding this material. We look forward to seeing you at your six month growth check!

Example: Dr. John Gillespie's Office

POST-OPERATIVE INSTRUCTIONS FOR HAIR TRANSPLANT SURGERY

Please follow these instructions when caring for the donor and transplanted areas when you are at home.

The Day Following Surgery: Day One

When using the shower for the first few days after surgery we recommend that you do not place your head directly under the spray. Instead take a cup or jug into the shower with you to fill up and gently pour over your head. Following the instructions below both morning and night will speed up the process of overall healing.

Cleansing the Non-Graft Donor Area

- ☑ Lather sides & suture area using a small amount of shampoo.
- ☑ Rinse by filling a cup or jug and pouring over the area. You may use a conditioner in the same fashion.
- ☑ If the sutured area begins to bleed after washing, apply pressure with the gauze provided.
- ☑ You may blow-dry your hair, but stay away from the transplanted area. Finger style hair and avoid any styling products for at least 5 days.

Cleansing the Transplanted Area

- ☑ Mix a small amount of shampoo with warm water in a cup or jug and pour over the transplanted area.
- ☑ Pour warm water over the transplanted area to rinse.
- ☑ You may use a conditioner in the same fashion.
- ☑ When drying the transplanted area, gently pat dry or let air dry. **Do not rub dry!**
If the transplanted area bleeds, dab gently with gauze or paper towel.
- ☑ When combing your hair do not drag the comb against your scalp. Use the halo method.

DAYS TWO - THREE

- You may bathe or shower using either the cup method or a gentle spray.
- Shampoo donor area with shampoo as you usually would.
- Using Tersaseptic create lather and pat onto the transplanted area. Let sit for several minutes before gently rinsing clean.
- You may use conditioner in the same fashion.
- Pat gently to dry.

Continued...

DAY FOUR:

- Wash hair as before surgery using the pads of your fingertips. Gently massage transplanted area to encourage crust separation. ***Remember, there will be some hair in the crusts, but the follicle is intact and is resting in your scalp preparing to grow new hair!***
- We recommend having a bath once a day and submersing your entire head for 10 – 15 minutes, to allow the scabs to soak. This tends to get rid of them faster and get you back to normal much sooner.

DAYS FIVE, SIX, SEVEN:

- Continue the procedures above so that by day 7 almost all crusts are gone

9 – 10 DAYS:

It's time to come in and see us for the removal of your stitches. Please call us at 259-6798 to confirm a time. An appointment is not necessary, just let us know when you will be stopping by.

Notes:

[illegible]

PRE/POST-OP

Cooley's Office:

- **During clean up procedures (done at 7days or later), we soak the recipient area with gauze soaked with saline for 10-15 minutes. Then we use circular motions with a clean piece of gauze to debride the area. This makes the removal of any residual crusting much easier without disturbing the grafts.**
- **We finish the clean up by using a fine tooth plastic 'lice nit removal' comb available at drug stores. This will remove all crusting and should only be done when you are sure that no grafts will come out.**

Gillespie's Office:

- **Always review a patient's medical history with them by asking very specific questions. They don't always answer completely on the sheet. They can forget the most obvious things. For instance, we had a patient that didn't tell us about his pacemaker even after being asked if he had any cardiac issues.**

Notes:

Surgery Document Example: Dr. John Gillespie's Office

NAME: _____

DATE _____

PRE-OP

Photographs full front __ 45 angle down __ Chin chest __ 45 degree L __ R __ Full head facing back __ Initial __

B/P _____ Pulse _____ Address checked _____ Health Care # _____

Allergies to Penicillin, Codeine, and local anesthetic or any others _____

Questions / Concerns _____ Medications: _____

Prednisone 25mg (1/2 tab) _____ Keflex 500 mg (1 tab) _____ Erythromycin 500 mg (2 tabs) _____

Clonidine 0.1mg (1 tab) _____ Ativan 1mg 1 ____ 2 ____ 3 ____ tab(s) Time _____

Ride Home _____ Tomorrow client can be reached at _____

INTER-OP

Total Tissue _____ Tissue Quality / Density _____

Plant Difficulty _____

Total FU's Desired _____ grafts

Total FU's Obtained 1-2 hair FU's _____ 3+ FU's _____ Total _____

Xylocaine 1 VIAL Adrenalin 1.5 cc Sodium Bicarb 5cc

CONTINUED...

POST-OP

Prednisone _____ Erythromycin _____ Keflex _____ Tylenol #3 _____ Other _____

Pain Level on Departure _____

Explanation of cleaning and post-op teaching yes no Signature _____

Call Back Date _____ ***Questions / Comments*** _____

RETURN

Suture Date _____

Appearance _____

Swelling Post-operatively None _____ Some _____ A lot _____

Notes:

**Custom-made Table Cover for the Prone Position
Dr. James A. Harris: Greenwood Village, CO U.S.A.**

Our patients are in the prone position when taking out the strip. We had a hard time keeping the patient comfortable in this position, so we had one of our staff make a cover that would enclose a cut-to-fit Temperpedic mattress for added comfort and a place to put the patient's arms in a comfortable position. She also added straps with Velcro to wrap around the table to keep it in place. There are clasps to hold a towel and chux pad in place. The covers are machine-washable. We have a donut headrest that we use with a donut foam pad for added comfort.



Table cover with Foam Mattress



Patient in Prone Position



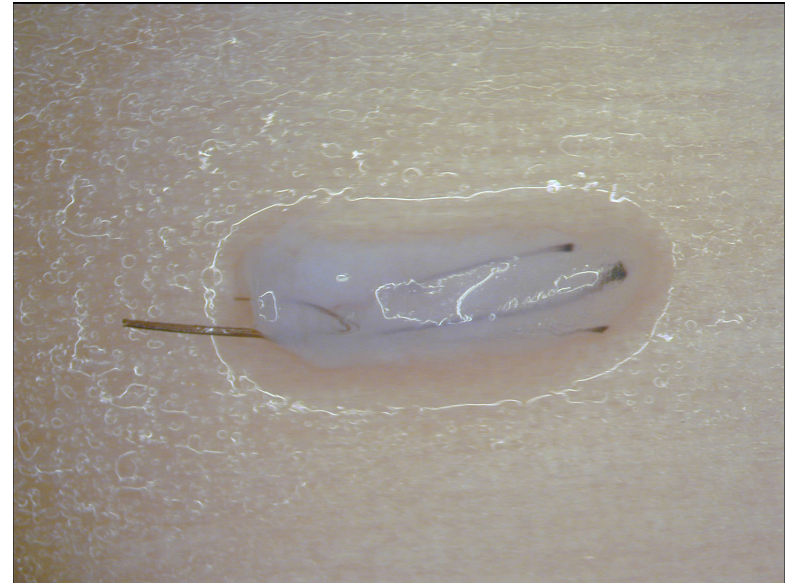
Arms Fit Comfortably in Slings

Notes:

UNUSUAL FINDINGS IN THE DONOR AREA

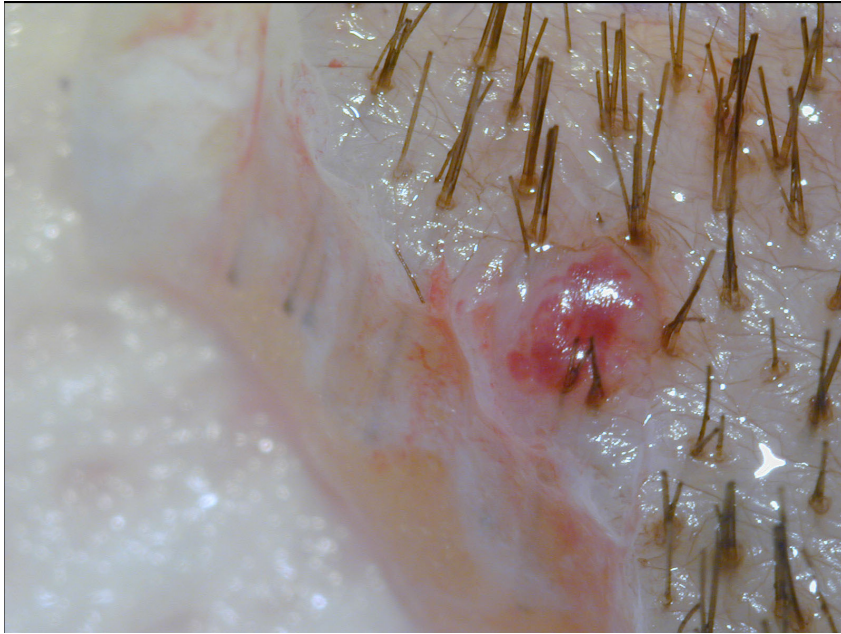


Eccrine Hydrocystoma

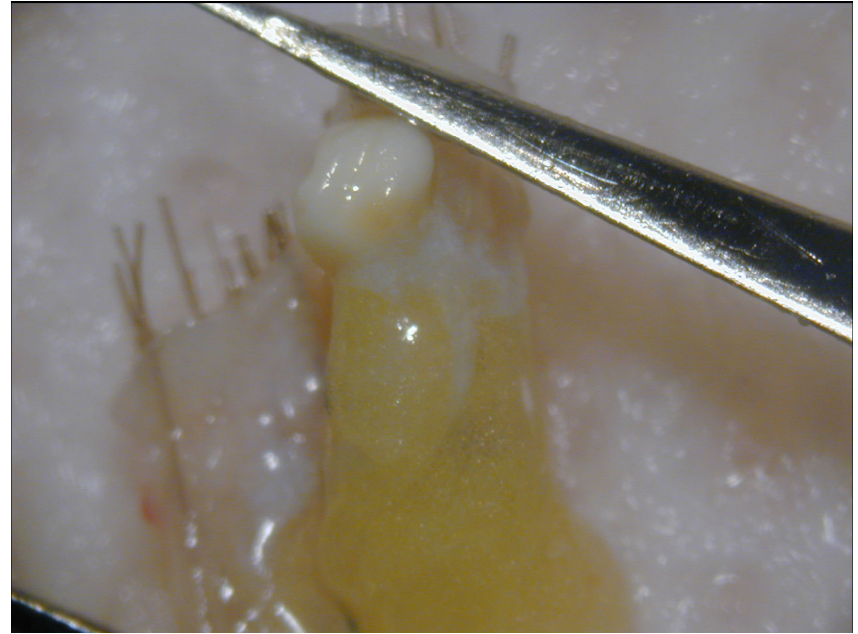


Ingrown Hair

Notes:

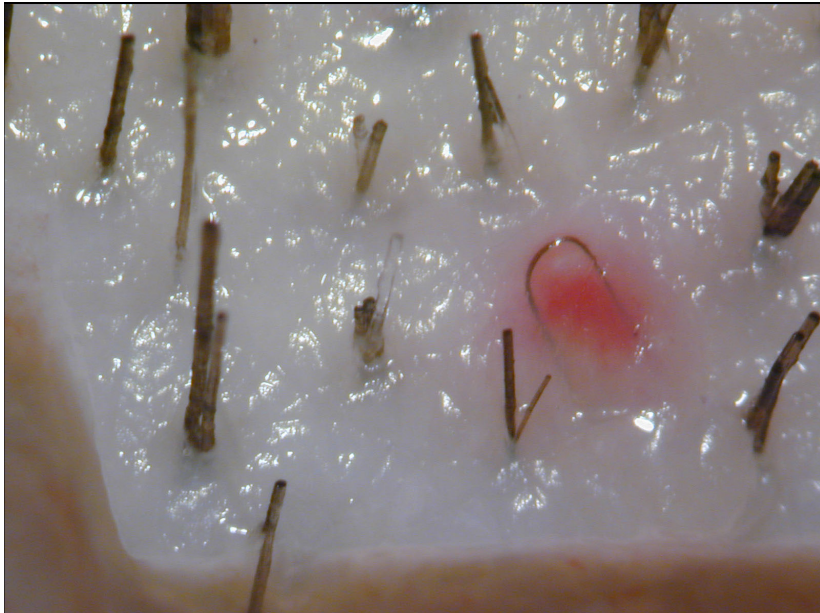


Hemangioma



Cyst

Notes:



Ingrown Hair



Notes:

VASOVAGAL RESPONSE

Submitted by: Laurie Gorham, RN

National Nursing Manager - Bosley

Occasionally a patient will display a vasovagal response. This is a common occurrence experienced during emotional stress, after an accident or during sensations of pain. The onset of the reaction is characterized by nausea, perspiration, confusion, dizziness, generalized weakness and an increase in heart rate. Soon after the initial symptoms are present, vagal activity results in the inevitable slowed heart rate and decrease in blood pressure. If left unaddressed, this response can progress to the point of the patient “passing out”.

As soon as the patient demonstrates or verbalizes any symptoms of distress, instruct someone to summon the physician. Never leave the patient unattended. Place the patient in a supine or Trendelenburg position with legs elevated above the heart and obtain vital signs. Monitor the patient’s airway at all times. If the patient complains of nausea, position him on his side; utilize an emesis basin as needed. If the patient is unresponsive, crush an ammonia ampule and allow the patient to inhale the fumes. Apply cold external stimulation to the chest with an ice pack.

These interventions will resolve the episode rapidly. Once the patient reports feeling better, you should provide fluids. Instruct the patient to notify the team immediately if he/she experiences any further distress.

Notes _____

FUE Extraction
Dr. James A. Harris: Denver, CO
Submitted by: Tina Lardner

Follicular Unit Extraction is performed with either the patient shaved or intermittently trimmed micro strips. The latter is for patients who do not want their donor area to be noticeable. With the patient shaved, Dr. Harris can extract 1800-2000 grafts (depending on density and previous surgeries) per day or 3000 in 2 consecutive days, where as with the micro strips, 1500 grafts is the maximum.



The donor area is pre-marked by Dr. Harris and shaved.



Numbing begins in the recipient area and into the pre-marked donor area. Lidocaine 2% is used and followed by Marcaine 0.5%.



If the patient is not shaving, individual micro strips (about 4 units wide) are taped and trimmed one at a time starting at the top going down in the prone position and then to the sides.

Notes:

FUE extraction continued...



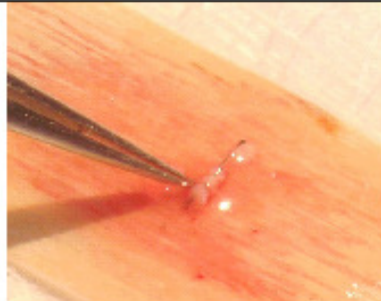
Once the donor area is prepped, Epinephrine (1:50,000) mixed with saline is injected superficially to reduce bleeding. As Dr. Harris punches the grafts using his 1.0mm SAFE Scribe, an assistant follows using two, serrated, Foerster forceps to gently lift the grafts out. The graft is extracted by lifting the graft slightly with one forcep and grabbing below the sebaceous gland to extract the graft. Special attention is made to avoid crushing the graft. The grafts accumulate on the forceps and are placed in a Petri dish.

Notes:

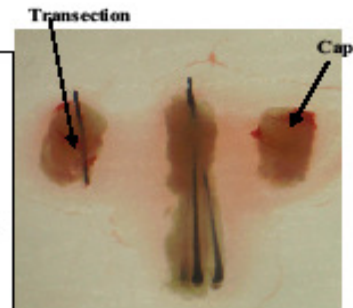
FUE extraction continued...



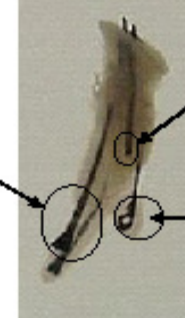
Grafts are inspected, counted, and sorted according to the number of hairs.



The graft in the middle is a typical FUE graft. FUE grafts tend to have less tissue surrounding the follicles compared to FUT grafts. We look for intact follicles with the dermal sheath surrounding them. A cap happens when the top part of the epidermis slides off the follicle, leaving the intact follicle behind.



Example of damaged follicles:

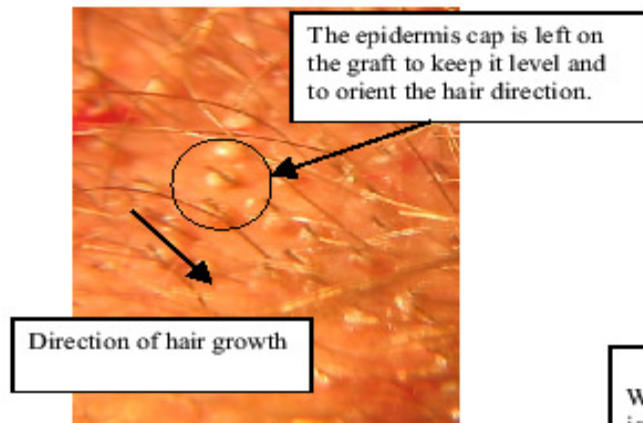


Transected follicle: has a defined straight edge.

Has no dermal sheath around bulb

Damaged bulb

FUE extraction continued...



Due to their delicate nature, only experienced placers should place FUE grafts. Since very little tissue surrounds the graft, they are at risk of dehydration, heat and crush injury.

One day post-op:

When combed up the picture on the left shows the micro strips. Here is the same patient with his hair combed down.



Vocabulary

• ADIPOSE	Subcutaneous fat tissue
• ALOPECIA	Medical term for hair loss
• ALOPECIA AREATA	Considered an autoimmune disease, in which the immune system mistakenly attacks the hair follicles
• ANDROGENIC ALOPECIA	Genetically determined condition
• ANAGEN	Active growth phase of hair follicles usually last about seven years
• ANTERIOR	Before or in front of; in anatomical nomenclature, refers to the ventral or the abdominal side of the body
• ANESTHESIA	Partial or complete block of sensation
• BODY DYSMORPIC	A fear of being deformed or the illusion that one is deformed
• BRADYCARDIA	A slow heart beat characterized by a heart rate below 60 beats per minute
• CCCA	Central centrifugal cicatricial alopecia (a type of scarring alopecia)
• CATAGEN	The resting phase of the hair growth cycle
• CORONAL	A plane through the body parallel to the shoulders

Notes:

Vocabulary (continued 2)

• DEHISCENCE	Opening up of the suture line
• DERMAL PAPILLA	A group of cells at the base of the hair follicle and is implicated in controlling the hair growth cycle
• DHT	Dihydrotestosterone - the male hormone that causes hair loss in most males
• EDEMA	A local or generalized condition in which body tissues contain an excessive amount of Fluid
• EPIDERMIS	Outermost layer of the skin
• 5AR	An enzyme that breaks down testosterone and turns it into DHT (5 alpha reductase)
• FOLLICULAR UNIT	Natural group of hair usually consisting of 1-4 hair follicles
• FOLLICULITIS	Skin condition in which there are inflamed hair follicles
• FUE (Follicular Unit Extraction)	The act of removing one follicle at a time
• HEMATOMA	A swelling or mass of blood (usually clotted) confined to tissue or space and caused by a break in a blood vessel
• HEMOSTASIS	An arrest of bleeding or circulation a stagnation of blood
• HIRSUTISM	Condition characterized by the excessive growth of hair or presence of hair in unusual Places, especially in women

Notes:

Vocabulary (continued 3)

• HTS-FRS (Hypo-Thermosol)	A solution formulated to reduce free radical accumulation in cells undergoing prolonged Preservation
• HYPERTROPHIC SCARS	An increase in the size of; sometimes seen as a result of function activity
• INFERIOR	beneath; lower
• INGROWN HAIRS	Folliculitis
• TACHYCARDIA	An abnormal rapid heart action; tachy
• TELOGEN	The resting phase of the hair follicle
• TELOGEN EFLUVIUM	When some stress causes hair roots to be pushed prematurely into the resting state
• TRICHOPHYTIC	Relates to tricophyton; promoting hair growth
• TRICHOTILLOMANIA	To pull; the unnatural urge to pull out one's own hair
• TUMESCENCE	A condition of swollen or tumid; swelling
• VELLUS	A very fine small hair
• VERTEX	The crown or the top of the head

Notes:

STATION SET-UP
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

Before the operation begins all the work stations are prepared for the task at hand.

They are two set ups that we use. The first being for slivering and the second for cutting.

STATION SET-UP FOR SLIVERING
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

Station Preparation for Slivering.

- Tape
- Gauze (10mmx10mm and 5mmx5mm)
- Blades
- Blade holder
- Forceps
- Dental needle (small)
- Petri dish
- Gloves
- Counting sheet
- Pen



STATION SET-UP FOR CUTTING
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

Station Preparation for Cutting.



- Tape
- Gauze (10mmx10mm and 5mmx5mm)
- Blades
- Blade holder
- Forceps
- Dental needle (small)
- Petri dish
- Holding Pots
- Sliver Pot
- Gloves
- Counting sheet
- Pen



SEPARATING A SLIVER INTO FOLLICULAR UNITS
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

When starting to divide the sliver into the follicular units contained within, it is necessary to be able to identify each follicular unit.



Then carefully cut in between each unit so not to transect any part of the unit.

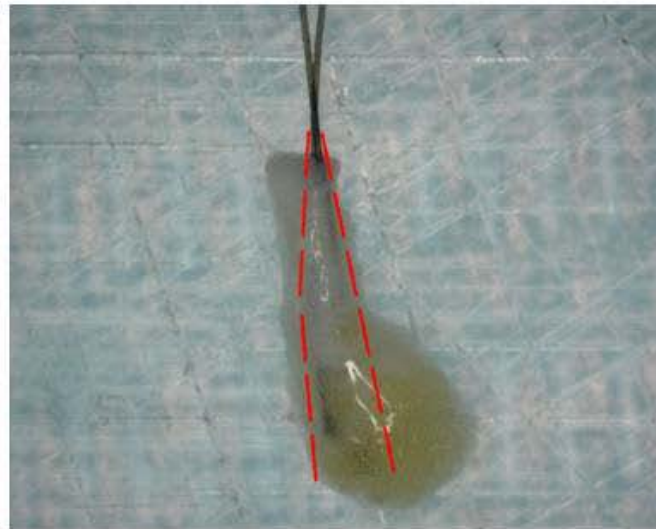
Now the follicular units are ready for trimming.



SEPARATING A SLIVER INTO FOLLICULAR UNITS
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

After the follicular unit has been separated from the sliver the excess tissue will need to be trimmed down.

Be very careful not to transect the hairs, or cause too much trauma to the unit.



SEPARATING A SLIVER INTO FOLLICULAR UNITS
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN

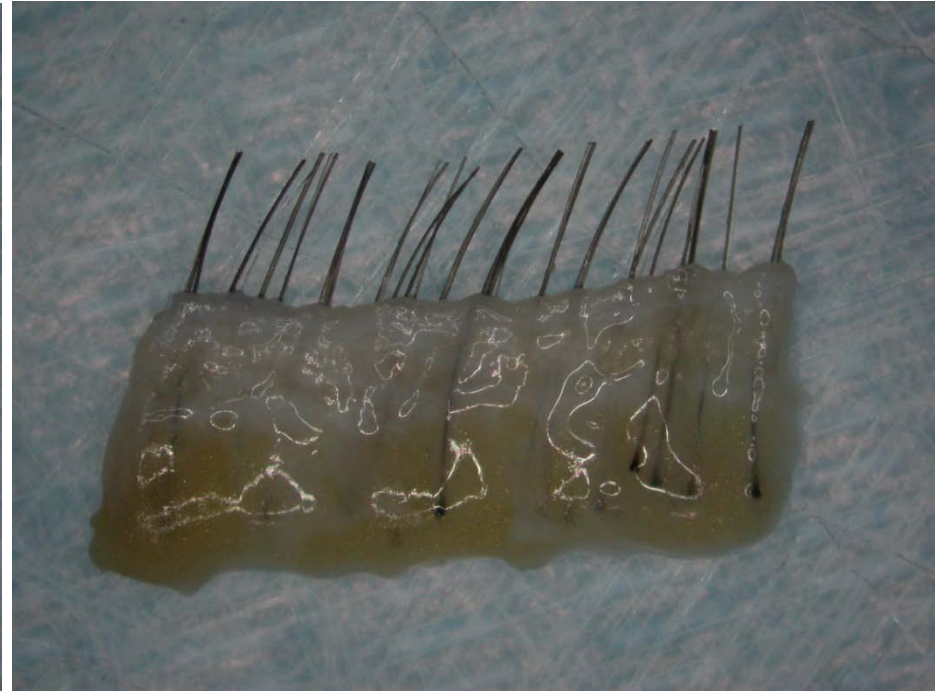
It is very important to leave a buffer of excess tissue around the graft, especially surrounding the shaft, the sebaceous gland and the roots.



SEPARATING A SLIVER INTO FOLLICULAR UNITS
HRBR Ltd., Dublin, Republic Of Ireland
Submitted by: Ms. Joanne Scannell RN



Sliver, side 1

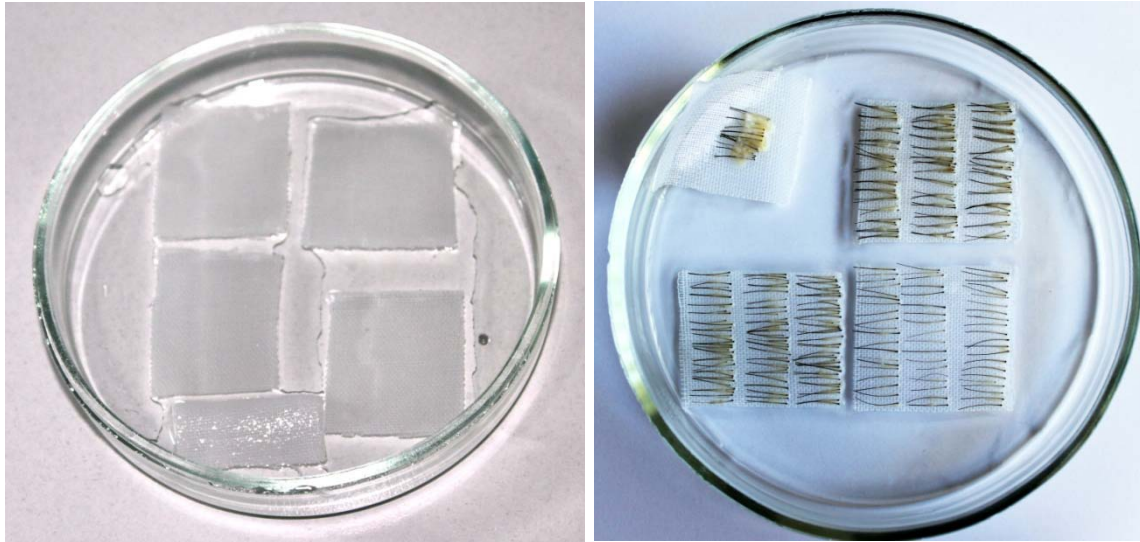


Same sliver, side 2

EQUIPMENT FOR PREPARING GRAFTS
Hair transplantation Clinic Talizi, Tbilisi, Georgia Dr. Akaki Tsilosani
Submitted by: Salome Vadachkoria



EQUIPMENT FOR PREPARING GRAFTS
Hair transplantation Clinic Talizi, Tbilisi, Georgia Dr. Akaki Tsilosani
Submitted by: Salome Vadachkoria





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