# Introduction to the use of implanters

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Since Yung Chul Choi began using the first types of implanters in the early 1990s, there have been many opinions written both for and against their use in hair transplantations. Only a very few hair transplant surgeons use implanters, and improvements made in the design and material used have not succeeded in gaining any interest. The reason for this is because the implanter requires in-depth knowledge and precise techniques for it to be beneficial to the surgeon. Without this technique, any professional who may have tried the implanter would probably soon have abandoned it due to the extra effort involved, complications, and lack of adequate preparation.

We have been using the implanters every day since 2003 and have learned from self-experience, evolving and changing in such a way that the implanter has become an indispensable tool for us during follicular unit implantation.

## The Implanter

The implanter consists of an external recyclable plastic shell, with an internal disposable grooved needle (Figure 1). The needle is changed before or during every procedure, whenever we notice that it has become blunt.

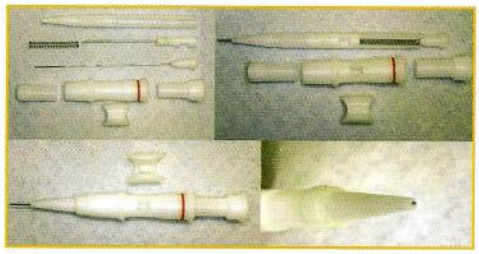

Figure 1. Implanter assembly.

We first need to open the plastic shell to change the needle and, after changing, attach the needle using the external circular clip. Always check that the internal guide is at the same level as the point of the implanter. If incorrectly positioned, the insertion of the units will be more difficult.

Once the implanters are correctly assembled, they are then sterilized. In our case, we use conventional and authorized chemical sterilization.

There are two main sizes of needles that we use: 0.80mm (for units of 1 and 2 hairs) and 1mm (for units of 2, 3, and 4 hairs). As we explained in the previous edition of this publication (*Hair Transplant Forum Int'l.* 2011; 21(3):82), we place a lot of importance on the quality of the needle: the internal and external diameter, the groove width, the edge, the point, and the surgical steel are all fundamental factors when it comes to working without complications. The measurements of our current implanters are:

| Item number | External diameter | Internal diameter | Channel width | Body length |
|---|---|---|---|---|
| Lion HT 08 | 0.8mm | 0.6mm | 0.30mm | 104.0mm |
| Lion HT 10 | 1.0mm | 0.8mm | 0.37mm | 104.0mm |

## Circulation of the Implanter

Our position at the table when it comes to loading the implanters has evolved notably during these past few years. We regularly work with 2 techs and 4 implanters (two of 0.80mm and two of 1mm). Their task is to load the implanters; the left side nurse acts as the table leader and is the person in charge of placing the implanters in the exact position so that the surgeon can take them without looking at the table. The technician on the right side of the table is in charge of keeping the follicles left on the gloves completely hydrated, the anesthesia, and the gauze. The table is flanked on the right-hand side by the Petri dishes and on the other sides by compressed tissues that act as small barriers so that the implanters can roll without the risk of falling off (Figure 2).

Figure 2. Circulation of the implanter.

The circuit of the implanters should be very strict and coordinated to avoid accidents. The surgeon must be positioned at the head of the patient; if right–handed, the table must be on his right-hand side at a distance no longer than half the length of the surgeon's arm (Figure 3).

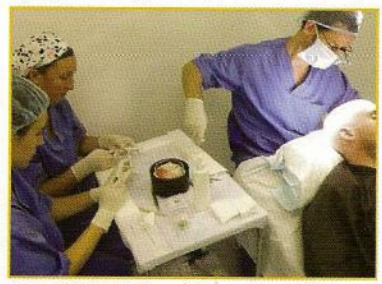

Figure 3. Positioning of the surgeon, patient, tray, and technicians.

Operating with magnifying glasses, the surgeon's vision should be fixed on the area that is being operated on. The surgeon never looks at the auxiliary table but knows automatically where the instruments are. The loaded implanters are always on the front part of the table, on the right, with the point facing outwards (the technician always keeps an eye on its correct position). The unloaded implanters are left on the internal part, against the Petri dishes, with the point facing to the front. The surgeon's hand, as it is blind, dominates the surgical site and always has preference over the nurse's hands. As in all surgical sites, there is never anything passed from hand-to-hand and no one can access the site while the surgeon's hand is present there. The implanter has to roll on the table in a controlled fashion. The "rolling" is very important because it helps the dynamism and rapidness of the procedure.

Lastly, the position of the patient is more inclined than that used for the forceps technique, particularly when operating on the frontal section. We must take care not to over-stretch or over-exert the neck, to avoid compromising the blood flow return and increase bleeding.

### Technique Used to Place the Units in the Grooved Needle

Our team performs only the FUE technique. As we mainly use punches of 0.75/0.80mm for the extraction, it is not necessary to use a microscope to trim the borders (Figure 4). This implies that all of the units are surrounded with epidermis above the sebaceous gland. This is fundamental as it plays an important part in:

- Depth control: the units always stay at the

Figure 4. Graft with and without epidermis.

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same level and avoid getting buried (Figure 5). With practice, the movements with the implanter can be very quick. The absence of a limit can cause many units to be inserted to an incorrect depth, which results in a lower survival rate.

- Hemostasis: as the surgical area is not predesigned, the epidermis of the follicular unit acts as a plug when inserted into the hole made by the needle, and thus avoids bleeding (Figure 5).

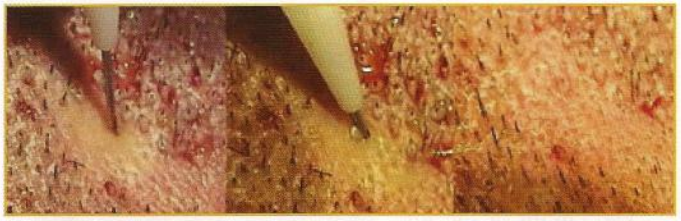

Figure 5. Depth control.

- The nurses always handle the units touching the epidermis only, thereby avoiding traumatizing the follicle.

Any skeleton units (without epidermis) are separated and left until the end of the procedure, with greater attention paid to their insertion, or are used as part of multiple units. The nurse holds the implanter in her left hand supporting the edge of the needle with her fifth finger (Figure 6).

Figure 6. Loading the implanter.

- The right hand supports the unit by the epidermis, places it in the bevel, and turns the head of the unit upwards. Only in this moment can we gently slip the unit through the canal. It is a delicate action that must not be forced, and as mentioned, the unit is never touched in critical sites but only on the epidermis. The grafts stay completely inside the needle and therefore remain protected until placed. As noted, there are always 2 to 4 implanters on the table; this way, the units are not affected by dehydration. Grafts are held in saline solution until loaded and then quickly implanted, the whole process takes seconds. In experienced hands, the velocity of implantation can reach up to 700 units per hour (500-900 depending on the characteristics of the dermis, elasticity, and hemostasis).