Follicle Multiplication & Hair Transplants - A Comparison

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New Research
Gho's Follicular Multiplication - An ExplanationThe big question seems to 'always be "What is Dr. Gho doing, exactly". The following article was written by Dr. Gho for HairlossTalk to help clear up some of the misconceptions of exactly what Follicular Multiplication is - both for consumers and those in the Hair Transplant Industry...**The Scientific Background of Follicular Multiplication**

Since 1996, we have carried out fundamental studies on cell cultures, plucked hair and performed biopsies on material. Recently, the results of one of our fundamental studies have been published in the British Journal of Dermatology (http://www.blackwell-synergy.com). In this publication we have revealed that two distinct parts in hair follicles contain stem cell pools, which can induce hair growth. The first area was found nearby the bulge area, the second area in the outer root sheath of the lower part of the hair follicle. These pools could also have been found on plucked hair and in our cell cultures. (This has been presented at the European Cytoskeleton Meeting).

001aa.jpg
Longitudinally
sectioned hair follicle stained for follicular stem cells in red. Higher magnifications (x40) of areas found to be positive for follicular stem cell markers are shown next to the respective areas of the hair follicle. Two areas were found to be positive for follicular stem cell markers; i.e. the upper third (A) and lower third (B) of the hair follicle.

This was a part of the fundamental basis for Follicular Multiplication as well as for Hair Multiplication.

Follicular Multiplication is a project that was started approximately eight years ago, prior to Hair Multiplication. At that time we didn't yet have a name for this project, called the Follicular Multiplication project today. The main objective of this study was to determine the minimal quantity of (follicle) tissue needed to regenerate completely normal hair growth. All these studies resulted in the patented GHO method of Follicular Multiplication.

In the Follicular Multiplication study, we revealed four remarkable discoveries:

1. The whole follicle is not needed to regenerate hair growth. The upper part of the follicle can regenerate a completely differentiated hair. This was proven by the partial follicular unit transplantation study. With this study we revealed

that it was not necessary to transplant the entire follicular unit to regenerate differentiated hair growth, but only a part of the follicular unit.

gho02.jpg	gho01.jpg	gho03.jpg
Partial Follicle Units	Partial Follicle Units after Implantation	Re-growth after Implantation

(Continued on the next page...)
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2. When a small portion of the follicle remains in the dermis, it can regenerate a completely differentiated hair.

gho04.jpg

Re-growth
in the donor area

3. Not both stem cell populations are necessary to induce normal hair growth. Therefore we can conclude that two hairs can grow from one follicle. If a small portion of the follicle remains in the donor area, it can regenerate a new hair, even when the major part of the follicle has been removed. The major part, which has been removed, will also produce a hair after being transplanted to the recipient area. So, one hair follicle can produce two hairs. However, at times too much follicle tissue has been removed from the donor area, so only the graft will regenerate a new hair. Furthermore, at times insufficient follicle tissue is removed from the donor area, resulting in only the donor area being able to continue producing hairs. Therefore, the percentage of “multiplication” varies for each patient.

4. The most remarkable and interesting finding is the so-called “Pili Multigemini.” This is a phenomenon where from one follicle, two or more follicles develop. In a normal follicle unit, two to three follicles are present. These follicles will generate two to three normal hairs. In several subjects we noticed that where one or two upper parts of the follicles were implanted, not one or two hairs, but three to even five hairs regenerated. This discovery was the basis of Hair Multiplication. The photos below show the phenomenon of "Pili Multigemini".

gho05.jpg	gho06.jpg	gho07.jpg
Example of Pili Multigemini	Example of Pili Multigemini	Example of Pili Multigemini

Follicular Multiplication Today

At the time we did not continue to develop Follicular Multiplication because we could only extract 40 to 50 grafts in one day and instead continued to develop Hair Multiplication. Due to the innovation and development of new instruments as well as of our technique, we are now able to extract 350 up to 500 grafts in one day, depending on the condition of the skin.

Due to our Follicular Multiplication technique being new, 99.9% of doctors are not yet familiar with this technique. They do not know what to expect and may believe that the wound healing is the same as compared to the old technique. In addition, we also get new information every day.

The Difference between Follicular Unit Extraction (FUE) and Follicular Multiplication

The difference between FUE and Follicular multiplication is that we do not extract the whole follicular unit. In our (fundamental as well as clinical) studies we revealed that the whole follicle is not needed to regenerate hair growth. If a small portion of the follicle remains in the donor area, it can regenerate a new hair, even when the major part of the follicle is removed. The major part, which has been removed, will also produce a hair when transplanted into the recipient area. So, one hair follicle can produce two hairs. The rate of multiplication varies between patients, because we sometimes remove too much follicular tissue from the donor area, so only the graft will generate a new hair. At times we remove insufficient follicular tissue from the donor area, so only the donor area will continue to produce hairs. These are the reasons why the percentage of “multiplication” varies for each patient. At the moment we have increased consistency in the multiplication rate (50 to 80%).

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