# History of Autologous Hair Transplantation

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The first experiments with hair transplantation were performed in Würzburg, Germany, in the early nineteenth century. However, all the conventional procedures, the strip method, punch method, and FUE method, originated in Japan.

In the 1930s the Japanese physicians Okuda and Tamura began to perform autologous hair transplants. Okuda initially harvested the transplants using a classic biopsy punch and transplanted the "hair-bearing skin islands" into the recipient region and thus laid the groundwork for the punch method [1].

Tamura, however, employed a different procedure. He harvested transplants by excising skin which he later divided into small pieces and transplanted. In this way he became a forerunner of the strip method, also known as the FUT method [2].

The harvesting of individual follicular units (FUs) using a 1 mm cannulated needle was first described by the Japanese practitioner Masumi Inaba in 1988. This tissue-sparing procedure, described as "follicular unit extraction" (FUE), remains to this day the only minimally invasive harvesting method in hair transplantation (Table 1.1).

The method described by Okuda for harvesting autologous grafts using a skin biopsy punch was adopted by the American physician Orentreich in the late 1950s. This is how autologous hair transplantation was first introduced into the Western world. Orentreich published his clinical results in connection with the treatment of patients with androgenetic hair loss and introduced the term "donor dominance" [3]. The term first described that the autologous hair follicle retains its healthy characteristics, namely, its insensitivity to dihydrotestosterone (DHT), after being transplanted to bald areas of the scalp affected by androgenetic alopecia. This means that the transplanted hair follicle will produce healthy hair even in a new location as its insensitivity to DHT is unaffected by androgenetic alopecia and will remain so in the future.

The cosmetically unsatisfactory and unnatural results of direct transplantation of hair-bearing skin islands 3.5–4 mm in size led to the development of new methods. Initially relatively large, the skin islands were dissected to ever smaller grafts. This division was performed without regard to the anatomy of the hair follicles growing



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**Table 1.1** History of hair transplantation

| Time | Event |
|---|---|
| Early nineteenth century | • First experimental attempts in Würzburg |
| 1930s | • Beginnings of autologous hair transplantation with the punch and strip methods |
| 1939 | • Dr. Okuda described the punch method by means of a biopsy punch |
| 1943 | • Dr. Tamura, pioneer of the current strip method, first described removing a flap of skin and subsequently dividing it into individual grafts |
| Late 1950s | • Donor dominance discovered and first described by Orentreich [3] |
| 1980s | • Headington [4] first described the follicular units<br>• Masumi Inaba first described the FUE method of harvesting individual follicular units |
| 1993 | • International Society of Hair Restoration Surgery (ISHRS) founded |
| 2000 and later | • Minimally invasive harvesting method becomes increasingly common and optimized |
| 2011 | • FUE Europe founded |

in groups as follicular units. These "hair groups" were referred to as micrografts with 1–2 hairs and as minigrafts with 3–6 hairs.

Later the hair-bearing skin islands or skin strips were divided into differentiated anatomic units, follicular units, which increasingly led to superior clinical results compared with the earlier micrografts and minigrafts.

The cosmetically unnatural results of the punch method coupled with the relatively difficult procedure of dividing the harvested tissue into smaller grafts led many physicians to prefer the strip method of hair transplantation. Yet because of its traumatic nature and the resulting scarring, this method cannot represent a sustainable solution for androgenetic hair loss, a progressive condition.

From the mid-1990s on, the tissue-sparing technique of harvesting individual follicular units increasingly gained acceptance among physicians and especially among patients. This method of minimally invasive hair transplantation minimizes traumatization of the patient while maximizing cosmetic results by achieving a natural appearance. It may thus be regarded as the most promising method for the future.

## References

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