

CLAIMS

We claim:

1. A hair transplant device comprising:
 - an extraction unit including a coring needle configured to extract at least one hair follicle from a donor site;
 - an implanting unit removably coupled to the extraction unit, the implanting unit including a splitting needle configured to create an opening in a recipient site;
 - a housing coupled to the extraction unit; and
 - a user interface extending from the housing and moveable relative to the housing;wherein when the extraction unit is assembled with the implanting unit, the coring needle and the splitting needle are arranged along a common axis and the coring needle and the splitting needle are axially separated such that the user interface can be displaced to drive the hair follicle from within the coring needle into the opening in the recipient site to implant the hair follicle.
2. The hair transplant device of claim 1, the coring needle having a first cutting end configured to cut into the donor site and a first coupling end opposite the first cutting end, the coring needle being coupled to the extraction unit at the first coupling end.
3. The hair transplant device of claim 2, the splitting needle having a second cutting end configured to cut into the recipient site and a second coupling end opposite the second cutting end.
4. The hair transplant device of claim 3, further comprising a coupling configured to connect the coring needle and the splitting needle together at the first cutting end and the second coupling end, respectively.

5. The hair transplant device of claim 4, wherein the coupling includes a hollow core such that a continuous lumen can be defined by the coring needle, the coupling, and the splitting needle.

6. The hair transplant device of claim 1, wherein the coring needle and the splitting needle define the same diameter.

7. The hair transplant device of claim 1, wherein the coring needle defines a first diameter and the splitting needle defines a second diameter, the first and second diameters being different.

8. The hair transplant device of claim 1, wherein the user interface includes a pin, the pin forming a central lumen in fluid communication with a coring lumen within the coring needle.

9. The hair transplant device of claim 8, wherein the central lumen is configured to deliver a gas or a liquid into the coring lumen of the coring needle while implanting the hair follicle into the recipient site.

10. The hair transplant device of claim 8, wherein the pin includes a mesh coupled to a distal end of the pin, the mesh configured to prevent the extracted hair follicle from entering into the central lumen of the pin.

11. The hair transplant device of claim 8, the central lumen being configured to be coupled to a suction source to deliver a suction force into the coring lumen of the coring needle to effectuate extracting the hair follicle from the donor site.

12. The hair transplant device of claim 8, the central lumen being configured to be coupled to a fluid source to deliver a liquid implanting agent into the coring lumen of the coring needle via the central lumen in the pin while implanting the hair follicle into the recipient site.

13. The hair transplant device of claim 12, wherein the liquid implanting agent comprises glycerol or polyethylene glycol.

14. The hair transplant device of claim 1, wherein the extraction unit further includes an extraction stop moveable relative to the coring needle and configured to adjust a coring depth, the extraction stop including a first interface surface that, during extraction of the hair follicle, is configured to contact a surface of the donor site at a predetermined coring depth.

15. The hair transplant device of claim 1, wherein the implanting unit further includes an implanting stop moveable relative to the splitting needle and configured to adjust an implanting depth, the implanting stop including a second interface surface that, during implanting of the hair follicle, is configured to contact a surface of the recipient site at a predetermined implanting depth.

16. The hair transplant device of claim 1, extraction unit includes guides configured to receive slots on an implanting unit to rotationally lock the implanting unit relative to the extraction unit.

17. The hair transplant device of claim 1, further comprising a casing at least partially surrounding the housing, the casing including a slot configured to receive at least a portion of the user interface to lock an axial position of the user interface relative to the housing.

18. The hair transplant device of claim 1, wherein the coring needle is a plurality of coring needles, each of the plurality of coring needles configured to extract one or more hair follicles from the donor site;

the splitting needle is a plurality of splitting needles configured to create a corresponding plurality of openings in the recipient site; and

a plurality of pins movable relative to the housing via the user interface, wherein each of the plurality of pins is configured to be received within one of the plurality of coring needles.

19. The hair transplant device of claim 18, wherein each of the plurality of coring needles or each of the plurality of splitting needles can be independently adjusted such that a density of extracting or implanting hair tissues can be varied.

20. The hair transplant device of claim 18, wherein an axial position of each of the plurality of coring needles is adjustable relative to the housing.

21. A hair transplant device comprising:

an extraction unit configured to extract at least one hair follicle from a donor site, the extraction unit including a coring needle having a first cutting end configured to form a core from a donor site and a first coupling end opposite the first cutting end;

an implanting unit removably coupled to the extraction unit, the implanting unit including a splitting needle having a second cutting end configured to form an opening into a recipient site and a second coupling end opposite the second cutting end;

a housing coupled to the extraction unit;

a pin moveable relative to the housing and configured to be slidably received within the coring needle; and

a coupling configured to connect the coring needle and the splitting needle together at the first cutting end and the second coupling end, respectively, when the extraction unit is assembled with the implanting unit.

22. The hair transplant device of claim 21, further comprising a user interface coupled to the pin, wherein the user interface is configured to move a predetermined amount relative to the housing to control a depth of delivery of the hair follicle within the opening in the recipient site.

23. The hair transplant device of claim 22, further comprising a casing removably coupled to the hair transplant device and at least partially surrounds the housing, the casing including a slot configured to receive the user interface to lock an axial position of the pin relative to the housing.

24. The hair transplant device of claim 23, wherein the casing defines a stop surface forming an axial stop for the implanting unit.

25. The hair transplant device of claim 24, wherein the casing further defines an interface surface configured to contact a surface of the recipient site, the interface surface being axially separated from the stop surface.

26. The hair transplant device of claim 21, further comprising a cartridge configured to rotate about a revolution axis that parallel to an axis defined by the coring needle, the cartridge including a plurality of openings to be selectively aligned with the coring needle such that cores from the donor site can be stored within each of the plurality of openings on the cartridge.

27. A method of performing a hair transplant procedure comprising:
driving a coring needle to engage a donor site to arrange a hair follicle within a coring lumen of the coring needle;
coupling a splitting needle to a cutting end of the coring needle;
driving the splitting needle to engage a recipient site to create an opening in the recipient site; and
engaging a user interface to displace a pin axially aligned with the coring needle and the splitting needle to displace the hair follicle from within the coring lumen into the opening in the recipient site to implant the hair follicle.

28. The method of claim 27, wherein the pin forms a central lumen in fluid communication with the coring lumen.

29. The method of claim 28, further comprising applying suction to the coring lumen of the coring needle via the central lumen in the pin during or after the engagement of the coring needle with the donor site.

30. The method of claim 28, further comprising delivering an implanting agent into the coring lumen of the coring needle via the central lumen in the pin while implanting the hair follicle into the recipient site.

31. The method of claim 30, wherein the implanting agent comprises glycerol or polyethylene glycol.