CLAIMS

1. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device for storing electrical energy;

a magnetic field generating device;

a switching device configured to discharge the electrical energy from the energy storage device to the magnetic field generating device, such that a time-varying magnetic field is generated and causes contraction of a muscle in the body area of the patient;

wherein the time-varying magnetic field has a magnetic flux density in a range of 0.1 T to 7 T and repetition rate in a range of 1 Hz to 700 Hz; and

a radiofrequency electrode comprising a plurality of openings configured such that induction of eddy currents in the radiofrequency electrode caused by the time-varying magnetic field is minimized, wherein the radiofrequency electrode is configured to generate radiofrequency waves to heat tissue in the body area of the patient, and

wherein a ratio of a perimeter of the radiofrequency electrode to an area of the radiofrequency electrode is in a range of 150 m^{-1} to 20,000 m^{-1}.

2. The device of claim 1, wherein the magnetic field generating device and the radiofrequency electrode are separated by an electrically insulating material.

3. The device of claim 1 or 2, wherein the magnetic field generating device further comprises an air core.

4. The device of any one of claims 1 to 3, wherein the plurality of openings are located between the body area of the patient and the magnetic field generating device, and wherein the number of openings located between the body area of the patient and the magnetic field generating device is in a range of 10 to 600.

5. The device of any one of claims 1 to 4, wherein the plurality of openings includes an electrically insulating material or a dielectric material disposed within an opening of the plurality of openings.

6. The device of any one of claims 1 to 5, wherein an opening in the plurality of openings comprises a diameter defined by a perimeter of the opening, wherein a maximum diameter of the opening is in a range of 0.01 mm to 10 mm.

7. The device of any one of claims 1 to 6, wherein a magnetic flux density measured on a surface of the radiofrequency electrode during the treatment is in a range of 0.1 T to 5 T.

8. The device of any one of claims 1 to 7, wherein a shortest distance between the magnetic field generating device and the radiofrequency electrode is in a range of 0.1 mm to 100 mm.

9. A device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device for storing electrical energy;

a magnetic field generating device;

a radiofrequency electrode comprising a plurality of cutouts in a conductive area of the radiofrequency electrode, wherein the radiofrequency electrode is configured to generate radiofrequency waves to heat tissue of the patient;

wherein a shortest distance between a point along a perimeter of a first cutout of the plurality of cutouts and a point along a perimeter of a second cutout of the plurality of cutouts is in a range of 0.1 mm to 50 mm; and

a control system configured to cause the magnetic field generating device to generate a time-varying magnetic field having a magnetic flux density in a range of 0.1 T to 7 T and repetition rate in a range of 1 Hz to 700 Hz that causes a contraction of a muscle in the body area of the patient;

wherein the control system is configured to cause the radiofrequency electrode to generate the radiofrequency waves to heat tissue of the patient.

10. The device of claim 9, wherein a number of cutouts in the plurality of cutouts is in a range of 10 to 600.

11. The device of claim 9 or 10, wherein a magnetic flux density measured on the plurality of cutouts during the magnetic treatment is in a range of 0.1 T to 5 T.

12. The device of any one of claims 9 to 11, wherein the radiofrequency electrode is a bipolar radiofrequency electrode.

13. The device of any one of claims 9 to 12, wherein the magnetic field generating device further comprises a flat coil with an air core.

14. The device of any one of claims 9 to 13, wherein a ratio of a perimeter of the radiofrequency electrode to an area of the radiofrequency electrode is in a range of 150 m^{-1} to 20,000 m^{-1}.

15. The device of any one of claim 9 to 14, wherein an electrically insulating material or a dielectric material is disposed within a cutout of the plurality of cutouts.

16. The device of any one of claims 9 to 15, further comprising an applicator, wherein the magnetic field generating device and the radiofrequency electrode are arranged within the applicator.

17. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device for storing electrical energy;

a magnetic field generating device;

a switching device configured to discharge the electrical energy from the energy storage device to the magnetic field generating device in order to generate a time-varying magnetic field comprising a magnetic flux density in a range of 0.1 T to 7 T and a repetition rate in a range of 1 Hz to 700 Hz to cause a muscle in the body area of the patient to contract; and

an applicator comprising:

a casing;

the magnetic field generating device housed in the casing of the applicator; and

a radiofrequency electrode disposed between the magnetic field generating device and the body area of the patient, the radiofrequency electrode comprising a conductive surface comprising a plurality of protrusions separated from one another, wherein the radiofrequency electrode is configured to generate radiofrequency waves to heat tissue at the body area.

18. The device of claim 17, wherein the magnetic field generating device further comprises a flat coil with an air core.

19. The device of claim 17 or 18, wherein the radiofrequency electrode comprises a metal layer on an insulating substrate.

20. The device of any one of claims 17 to 19, wherein the plurality of protrusions is located below the magnetic field generating device, and wherein a number of protrusions in the plurality of protrusions is in a range of 10 to 600.

21. The device of any one of claims 17 to 20, wherein a magnetic flux density measured on the plurality of protrusions during the magnetic treatment is in a range of 0.1 T to 5 T.

22. The device of any one of claims 17 to 21, wherein the plurality of protrusions comprises a first protrusion and a second protrusion, and wherein the first protrusion and the second protrusion are parallel to one another.

23. The device of any one of claims 17 to 22, wherein a shortest distance between the magnetic field generating device and the radiofrequency electrode is in a range of 0.1 mm to 100 mm.

24. The device of any one of claims 17 to 23, wherein the radiofrequency electrode is a bipolar radiofrequency electrode.

25. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device configured to store electrical energy;

a magnetic field generating device;

a switching device configured to discharge the electrical energy from the energy storage device to the magnetic field generating device, such that a time-varying magnetic field is generated and provides muscle contraction to a muscle in the body area of the patient,

wherein the time-varying magnetic field has a magnetic flux density in a range of 0.1 Tesla to 7 Tesla and a repetition rate in a range of 0.1 Hz to 700 Hz; and

a radiofrequency electrode configured to generate radiofrequency waves to heat tissue in the body area of the patient,

wherein a body of the radiofrequency electrode comprises a plurality of openings in a range of 5 to 1000 openings.

26. The device of claim 25, wherein the magnetic field generating device comprises an air core.

27. The device of claim 25 or 26, further comprising an applicator comprising a casing, wherein the magnetic field generating device is positioned within the casing.

28. The device of any one of claims 25 to 27, wherein a shortest distance between the magnetic field generating device and the radiofrequency electrode is in a range of 0.1 mm to 100 mm.

29. The device of any one of claims 25 to 28, wherein the magnetic field generating device and the radiofrequency electrode are separated by an insulating material and/or an air gap.

30. The device of any one of claims 25 to 29, wherein the radiofrequency electrode comprises a conductive layer deposited on an insulating substrate, and wherein a thickness of the conductive layer is in a range of 0.01 mm to 5 mm.

31. The device of any one of claims 25 to 30, wherein the radiofrequency electrode further comprises an electrically insulating material and/or a dielectric material disposed within each opening of the plurality of openings.

32. The device of any one of claims 25 to 31, wherein the body of the radiofrequency electrode further comprises a plurality of protrusions, wherein adjacent protrusions of the plurality of protrusions define the plurality of openings, and wherein at least one of the plurality of openings is further defined by a hypothetical circle fitting within the opening between adjacent protrusions, such that a maximum diameter of the hypothetical circle fitting within the opening between the adjacent protrusions is in a range of 0.01 mm to 10 mm.

33. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device configured to store electrical energy;

a magnetic field generating device;

a switching device configured to discharge the electrical energy from the energy storage device to the magnetic field generating device, such that a time-varying magnetic field is generated and provides muscle contraction to a muscle in the body area of the patient,

wherein the time-varying magnetic field has a magnetic flux density in a range of 0.5 Tesla to 7 Tesla and a repetition rate in a range of 0.1 Hz to 700 Hz; and

a radiofrequency electrode configured to generate radiofrequency waves to heat tissue in the body area of the patient,

wherein the radiofrequency electrode is positioned between the magnetic field generating device and the body area of the patient.

34. The device of claim 33, wherein the magnetic field generating device and the radiofrequency electrode are separated by an air gap.

35. The device of claim 33 or 34, wherein the magnetic field generating device and the radiofrequency electrode are separated by an insulating material.

36. The device of claim 35, wherein the insulating material is a part of a printed circuit board.

37. The device of any one of claims 33 to 36, wherein a distance between the magnetic field generating device and the radiofrequency electrode is in a range of 0.5 mm to 50 mm.

38. The device of any one of claims 33 to 37, wherein the radiofrequency electrode comprises a conductive wire.

39. The device of any one of claims 33 to 38, wherein the radiofrequency electrode comprises a conductive layer having a thickness in a range of 0.01 mm to 5 mm.

40. The device of any one of claims 33 to 39, wherein the radiofrequency electrode is a first radiofrequency electrode of a bipolar pair of radiofrequency electrodes.

41. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device configured to store electrical energy;

an applicator comprising:

a casing comprising a top cover and a bottom cover;

a magnetic field generating device housed within the casing; and

a radiofrequency electrode positioned between the magnetic field generating device and the bottom cover; and

a switching device configured to discharge the electrical energy from the energy storage device to the magnetic field generating device, such that the magnetic field generating

device generates a time-varying magnetic field to cause a muscle in the body area of the patient to contract,

wherein the time-varying magnetic field has a magnetic flux density in a range of 0.5 Tesla to 7 Tesla and a repetition rate in a range of 0.1 Hz to 700 Hz, and

wherein the radiofrequency electrode is configured to generate radiofrequency waves to heat tissue in the body of the patient.

42. The device of claim 41, wherein the radiofrequency electrode is connected to a power amplifier configured to generate a radiofrequency signal having a frequency in a range of 100 kHz to 3 GHz.

43. The device of claim 41 or 42, wherein the radiofrequency electrode is a first radiofrequency electrode from a bipolar pair of radiofrequency electrodes positioned within the applicator.

44. The device of any one of claims 41 to 43, further comprising a control system comprising a microprocessor, wherein the applicator further comprises a temperature sensor, and wherein the temperature sensor communicates with the control system.

45. The device of claim 43 or 44, wherein a distance between the pair of radiofrequency electrodes is in a range of 0.1 cm to 25 cm.

46. The device of any one of claims 41 to 45, wherein the radiofrequency electrode comprises a conductive layer having a thickness in a range of 0.01 mm to 10 mm.

47. The device of any one of claims 41 to 46, wherein the radiofrequency electrode comprises a conductive layer deposited on an insulating substrate.

48. The device of any one of claims 41 to 47, wherein the radiofrequency electrode comprises 5 to 1000 of openings in a body of the radiofrequency electrode.

49. A treatment device for providing a magnetic treatment and a radiofrequency treatment to a body area of a patient, comprising:

an energy storage device configured to store electrical energy;

a first applicator comprising:

a first casing of the first applicator;

a first magnetic field generating device housed within the first casing; and

a first radiofrequency electrode comprising a conductive layer;

a switching device configured to discharge the electrical energy from the energy storage device to the first magnetic field generating device, such that the first magnetic field generating device generates a time-varying magnetic field to cause a muscle in the body area of the patient to contract; and

a human machine interface comprising a display interface comprising a plurality of intensity scrollers, buttons, or sliders,

wherein the time-varying magnetic field has a magnetic flux density in a range of 0.5 Tesla to 7 Tesla and a repetition rate in a range of 0.1 Hz to 700 Hz,

wherein the first radiofrequency electrode is configured to generate radiofrequency waves to heat tissue in the body of the patient,

wherein a first scroller, button, or slider of the plurality of intensity scrollers, buttons, or sliders is configured to independently control an intensity of a magnetic treatment provided by the first magnetic field generating device, and

wherein a second scroller, button, or slider of the plurality of intensity scrollers, buttons, or sliders is configured to independently control an intensity of a radiofrequency treatment provided by the first radiofrequency electrode.

50. The device of claim 49, further comprising a second applicator comprising a second casing, a second magnetic field generating device, and a second radiofrequency electrode, wherein the first applicator and second applicator are configured to be coupled to the patient by a belt.

51. The device of claim 50, wherein the second magnetic field generating device is housed within the second casing of the second applicator and configured to generate a second time-varying magnetic field having a magnetic flux density in a range of 0.1 Tesla to 7 Tesla and a repetition rate in a range of 0.1 Hz to 700 Hz to cause a muscle in the body area of the patient to contract,

wherein the second radiofrequency electrode is configured to generate radiofrequency waves to heat tissue in the body of the patient,

wherein a third scroller, button, and/or slider of the plurality of intensity scrollers, buttons, and/or sliders is configured to independently control an intensity of a magnetic treatment provided by the second magnetic field generating device, and

wherein a fourth scroller, button, and/or slider of the plurality of intensity scrollers, buttons, and/or sliders is configured to independently control an intensity of a radiofrequency treatment provided by the second radiofrequency electrode.

52. The device of any one of claims 49 to 51, further comprising:

a main unit comprising the energy storage device, a power source for the radiofrequency treatment, and a connector to which the first applicator is connected; and

a connecting tube configured to connect the first applicator to the connector,

wherein the connecting tube comprises at least one wire configured to provide an electrical signal to the first radiofrequency electrode.

53. The device of any one of claims 49 to 52, wherein the first applicator further comprises an outlet configured to dissipate heat generated by the first magnetic field generating device.

54. The device of any one of claims 49 to 53, wherein the first magnetic field generating device is a planar magnetic coil.