

CLAIMS

1. A method of cosmetic tissue treatment, comprising:
 - disposing a treatment applicator comprising an electrode array comprising a plurality of needles on a portion of tissue such that a region of the electrode array contacts the portion of tissue, wherein each needle is an electrode in electrical communication with a control system;
 - applying a pulse of radio frequency (RF) energy to the portion of tissue through the electrode array;
 - measuring impedance of electrode array over time;
 - detecting a drop in the measured impedance while electrode array is in contact with the portion of tissue; and
 - upon detection of the reduction in impedance by a threshold value, terminating application of the pulse of RF energy after a treatment time period.
2. The method of claim 1, wherein the duration of the pulse is between about 1 ms and about 12 ms.
3. The method of claim 1, wherein impedance is measured at a sampling rate that ranges from about 10 KHz to about 50 KHz.
4. The method of claim 3 wherein impedance is measured at a sampling rate of about 30 KHz.
5. The method of claim 1 further comprising avoiding initiating muscle twitches during treatment time period.
6. The method of claim 5 wherein the electrode array has an output voltage with a ramp time ranging from about 100 microseconds to about 5 ms.
7. The method of claim 1 wherein the plurality of electrodes are connected in parallel.
8. The method of claim 1 further comprising transforming tissue such that tissue is removed in vicinity of contact with a subset of the plurality of electrodes.

9. The method of claim 1 further comprising applying a topical on the portion of the tissue prior to disposing the treatment applicator.
10. The method of claim 9 further comprising applying a topical on the portion of the tissue after the treatment time period.
11. The method of claim 1 further comprising applying a topical on the portion of the tissue after the treatment time period.
12. The method of claim 1 wherein the topical is a skin moisturizer.
13. The method of claim 1 wherein pulse of RF energy travels along surface of electrode and initiates a tissue effect when delivered to the portion of the tissue.
14. The method of claim 1 wherein one or more annular injuries is generated in tissue in response to pulse of radio frequency (RF) energy.
15. An apparatus for treating tissue, comprising:
 - a first treatment applicator head including a first plurality of needles; and
 - an applicator body having a first end connected to the first treatment applicator head; wherein the applicator body includes a second end in communication with a radio frequency (RF) power source and a control system;
 - wherein the first treatment applicator head, when connected to the applicator body, is electrically connected with the RF power source in communication with the second end;
 - wherein the control system is operable to terminate tissue treatment after a treatment period occurs, the treatment period initiated upon detection of a drop in impedance following an initial increase in impedance.
16. The apparatus of claim 15 wherein each needle of the plurality of needles has a blunt tip.
17. The apparatus of claim 15 further comprising a second treatment applicator head including a second plurality of needles, the first end of the applicator body connected to the

second treatment applicator head, wherein the second treatment applicator head, when connected to the applicator body, is electrically connected with the RF power source.

18. A method of treating tissue comprising, comprising:
applying radio frequency (RF) power to tissue through a plurality of electrodes;
during the application of the RF power, periodically measuring impedance of the tissue; and

controlling the application of RF power based on the impedance of the tissue such that treatment terminates after the measurement of a decrease in measured impedance.

19. The method of claim 18, wherein the decrease in measured impedance is correlated with one or more of the plurality of electrodes contacting an untreated region of tissue.

20. The method of claim 19 wherein a first conductive property of the untreated region of tissue differs from a second conductive property of a treated region of tissue.

21. The method of claim 20 wherein the treated region of tissue is disposed above the untreated region of tissue.

22. The method of claim 18, wherein RF power is reduced upon detection of a decrease in impedance of the tissue.

23. The method of claim 18, wherein the RF power is applied for a treatment time that ranges from about 1 ms and about 12 ms.

24. The method of claim 18, wherein the decrease in measured impedance ranges from about 10% to about 90%.

25. The method of claim 18, wherein the decrease in measured impedance ranges from about 20% to about 50%.