Abstract: An apparatus and method for treating a patient by using an ultrasonic treatment apparatus having an operating unit in communication with an ultrasonic transducer treatment module, including performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer treatment module; receiving first data relating to the treatment area of the patient; processing the first data into second data via the operating unit; transmitting the second data to a transferring device; extracting the second data from the transferring device; and evaluating adherence to prescribed ultrasonic therapy using the second data transmitted by and extracted from the transferring device.
METHOD AND APPARATUS FOR ULTRASOUND THERAPY

BACKGROUND

1. Technical Field

The present disclosure generally relates to therapeutically treating injuries by ultrasound. In particular, the present disclosure relates to a method and apparatus for prescribing an ultrasonic therapy regiment and evaluating adherence to the prescribed ultrasonic therapy regiment.

2. Description of Related Art

The use of ultrasound to therapeutically treat and evaluate bone injuries is known. Impinging ultrasonic pulses having appropriate parameters, e.g., frequency, pulse repetition, and amplitude, for suitable periods of time and at a proper external location adjacent to a bone injury has been determined to accelerate the natural healing of, for example, bone breaks and fractures. For patients with reduced healing capacity, such as elderly persons with osteoporosis, ultrasonic therapy may promote healing of bone injuries that would otherwise require prosthetic replacement or leave the patient permanently disabled.

U.S. Patent No. 5,904,659, to Duarte describes how the acoustic energy, produced by the ultrasonic apparatus, facilitates in the healing process. When using ultrasonic therapy for healing wounds, acoustic energy enters the body, it passes into internal body tissue and/or fluids. The acoustic energy, in the form of ultrasonic pulses, is reflected off the surface of underlying bone or other ultrasound reflective material, and the reflected ultrasound travels toward at least part of the internal surface or underside of the wound.
Healing of the wound at the internal surface by the generation of epithelial cells is enhanced via the acoustic stimulation.

Generally, a low frequency signal which is present as a modulation of the carrier frequency is transmitted from the ultrasonic transducer, through interposed soft tissue, and onto the surface of the bone. The carrier wave incident on the bone surface, or other reflection surfaces in the body, is reflected toward the internal surface of the wound. When the carrier wave impinges the internal surface of the wound, at least a portion of the carrier wave is converted into therapeutically beneficial shear waves of acoustic energy, flooding a region of the internal surface of the wound. The shear waves increase vascularization at the internal surface of the wound, thus enhancing growth of epithelial cells. The epithelial cell growth represents healing of the wound. Thus, this technique promotes healing of the wound from the internal surface of the wound.

The number, position, and size of ultrasonic applicators used at the external skin location are chosen based on the size and position of the wound, and the relative position and proximity of the bone from which the ultrasonic waves are reflected. One or more ultrasonic therapy treatments per day, each having duration of approximately 20 minutes, provides for a suitable treatment.

As a result, the conventional systems relate only to the use of ultrasonic therapy for healing different bodily injuries, including but not limited to single or multiple bone fractures, soft tissue ailments and the like. While the conventional systems relate to therapeutic methods and apparatus' for ultrasonically treating injured bone and soft tissue, they do not describe utilizing ultrasonic therapy that allows a doctor, physician, or therapist to prescribe ultrasonic therapy and/or monitor a patient's adherence to the
prescribed ultrasonic therapy. If the patients are administering the ultrasonic therapy themselves, there exists a likelihood that the patients may not adhere to the prescription.

The present disclosure accomplishes this by way of an ultrasonic transducer treatment module that is in operative communication with the ultrasonic apparatus where a physician can prescribe ultrasonic therapy and/or monitor a patient’s adherence to the prescribed ultrasonic therapy.

**SUMMARY**

The ultrasonic treatment apparatus of the present disclosure is used for therapeutically treating injuries using ultrasound. The apparatus includes an ergonomically constructed ultrasonic treatment apparatus including a main operating unit (MOU) in connection with an ultrasonic transducer treatment module (Module). The portable MOU is constructed to fit within a pouch worn by the patient and provide treatment timing control circuitry as well as monitoring circuitry for the proper operation of the ultrasonic treatment apparatus. In operation, the Module is positioned adjacent the area of the injury and excited for a predetermined period of time.

A method for ultrasonically treating musculoskeletal injuries and surface injuries such as, for example, open wounds, burns and venous ulcers, while maintaining patient mobility is also provided. Initially, the location of the injury is determined. Once the location of the injury is ascertained, a fixture is affixed to the patient adjacent the location. Preferably, the fixture is configured to receive at least a portion of an ultrasonic transducer assembly which is releasably secured to the fixture. A pouch having the MOU therein is releasably secured to the patient and is connected to the transducer treatment
head module. The signal generator in the transducer housing is then activated so as to excite an ultrasonic transducer to impinge ultrasonic waves against the injury.

In a first embodiment, a method for treating a patient by using an ultrasonic treatment apparatus having an operating unit in communication with an ultrasonic transducer treatment module, the method includes performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer treatment module; receiving first data relating to the treatment area of the patient; processing the first data into second data via the operating unit; transmitting the second data to a transferring device; extracting the second data from the transferring device; and evaluating adherence to prescribed ultrasonic therapy using the second data transmitted by and extracted from the transferring device.

In a second embodiment, a method for treating a patient by using an ultrasonic treatment apparatus having an operating unit in communication with an ultrasonic transducer treatment module, the method includes performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer treatment module; receiving first data relating to the treatment area of the patient; processing the first data into second data via the operating unit; wirelessly transmitting the second data to a processing means; extracting the information from the processing means; and evaluating adherence to prescribed ultrasonic therapy using the second data wirelessly transmitted by and extracted from the transferring device.

The present disclosure further provides an apparatus for treating a patient, the apparatus including an operating unit; and an ultrasonic transducer treatment module connected to the operating unit for performing ultrasonic therapy to a treatment area of
the patient via the steps of: receiving first data relating to the treatment area of the
patient; processing the first data into second data via the operating unit; transmitting the
second data to a transferring device; extracting the second data from the transferring
device; and evaluating adherence to prescribed ultrasonic therapy using the second data
transmitted by and extracted from the transferring device.

The present disclosure also provides an apparatus for treating a patient, the
apparatus including an operating unit; and an ultrasonic transducer treatment module
connected to the operating unit for performing ultrasonic therapy to a treatment area of
the patient via the steps of: performing ultrasonic therapy to a treatment area of the
patient via the ultrasonic transducer module; receiving first data relating to the treatment
area of the patient; processing the first data into second data via the operating unit;
wirelessly transmitting the second data to a processing means; extracting the information
from the processing means; and evaluating adherence to prescribed ultrasonic therapy
using the second data wirelessly transmitted by and extracted from the transferring
device.

The present disclosure further provides for a connector. The connector for
connecting two or more devices includes a first end connected to a first device; a second
end connected to a second device, the second end being a receptacle for receiving an
external connector of the second device; and a housing for providing operable
communication between the first end and the second end; wherein a central processing
unit (CPU) is embedded within the housing of the connector.

The present disclosure further provides for a method of connecting two or more
devices. The method includes the steps of connecting a first device to a first end of a
connector; connecting a second device to a second end of the connector, the second end being a receptacle for receiving an external connector of the second device; and providing operable communication between the first end and the second end via a housing; wherein a central processing unit (CPU) is embedded within the housing of the connector.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a schematic illustration of an ultrasonic treatment apparatus, in accordance with a first exemplary embodiment of the present disclosure;

FIG. 1A is an exploded view of the connector of the ultrasonic treatment apparatus, in accordance with an exemplary embodiment of the present disclosure;

FIG. 2 is an exploded view of the ultrasonic treatment apparatus in combination with a carrying means, in accordance to the present disclosure;

FIG. 3 is a schematic illustration of the ultrasonic treatment apparatus attached to a patient via a harness, in accordance to the present disclosure; and

FIG. 4 is a schematic illustration of an ultrasonic treatment apparatus, in accordance with a second exemplary embodiment of the present disclosure.

**DETAILED DESCRIPTION**

Referring to FIG. 1, a schematic illustration of an ultrasonic treatment apparatus, in accordance with a first exemplary embodiment of the present disclosure is presented.

The ultrasonic treatment apparatus 10 includes a Main Operating Unit (MOU) 12 and an Ultrasonic Transducer Treatment Module (Module) 14 connected to the MOU 12 by a cable 16.
The MOU 12 includes a housing 20, a display 30, a keypad 31, a smart card reader 50, a smart card reader slot 52, a smart card 54, and an alarm 62.

The housing 20 of the MOU 12 is typically constructed in two half-sections joined together by screws, ultrasonic welds or adhesives. A printed circuit board (not shown) is positioned within the housing 20, which includes the display 30 and the keypad 31. Display 30 may be, for example, a liquid crystal display (LCD) or an light emitting diode (LED) type display suitable for displaying text and numerals.

The housing 20 of the MOU 12 further includes a smart card reader 50 having a slot 52 for inserting a smart card 54. Specifically, the smart card reader 50 is preferably coupled to signal generator circuitry (not shown) including a central processing unit (CPU) on the printed circuit board and provides a communication link, for instance, for serial communications, between the signal generator circuitry and an external computer. In this exemplary embodiment of the present disclosure, a physician can download and/or upload information, such as the number, date, time of day, and/or duration of actual treatments initiated by the patient, and stored within signal generator circuitry.

The smart card 54 is defined as any pocket-sized card with embedded integrated circuits. It is contemplated that the internal circuitry smart card 54 can comprise a parallel operating identification circuit, as is preferable in the exemplary embodiments of the present disclosure. However, many different circuitry configurations and/or modes of operations may be implemented. Smart cards can be memory cards, which contain only non-volatile memory storage components, and perhaps some specific security logic and microprocessor cards, which contain memory and microprocessor components. Smart
cards generally fall into two categories, contact smart cards and contact-less smart cards. Either type may be used in the exemplary embodiments of the present disclosure.

In one method of operation, the physician stores the patient’s ultrasonic therapy prescription or regimen on smart card 54. The patient places smart card 54 into slot 52 of MOU 12, where smart card reader 50 downloads the prescription. Once the prescription is downloaded, ultrasonic treatment apparatus 10 functions in accordance with the prescription. In another exemplary embodiment, smart card reader 50 may be designed to receive a "swipe" from the patient. That is, the patient can swipe smart card 54 within slot 52 of smart card reader 50.

The housing 20 of the MOU 12 further includes an alarm system 62. Specifically, the CPU may be pre-programmed for treatment times and the user (e.g., the physician or the patient) may select one of the treatment times via keypad 31, or the CPU may be programmed by the user via keypad 31 to set the start and stop sequence. When the treatment time is activated, the CPU permits signals to pass to cable 16. When the treatment time expires, the signals are inhibited from passing to cable 16. In addition, when the treatment time expires, the CPU may send an alarm signal to alarm system 62.

The Module 14 includes at least two slotted lugs 116. The Module 14 allows the treating of bone defects and injuries by preferably using pulsed radio-frequency ultrasonic signals applied to the skin of the patient and directed to the site of the bone defect or injury. The radio-frequency signal is preferably in the range of 1.3 to 2 MHz, and preferably consists of pulses at a repetition rate of 100 to 1,000 Hz, with each pulse preferably having a duration in the range 10 to 2,000 microseconds.
In addition to the many different configurations that Module 14 of MOU 12 may have, MOU 12 may have as many Modules 14 as are required for the specific ultrasonic therapy. For example, it is contemplated that ultrasonic treatment apparatus 10 may have three Modules 14. It is also contemplated that each of Module 14 may be designed to transmit ultrasound at different frequencies, and/or at different time intervals. This also depends on the desired treatment parameters for each individual patient.

Referring to FIG. IA, an exploded view of the connector of the ultrasonic treatment apparatus, in accordance with an exemplary embodiment of the present disclosure is presented. In FIG. IA, the numbers which are the same as those in FIG. 1 are denoted by the same reference numerals and a description of such elements is omitted.

The cable 16 may include a central processing unit 200 or memory chip 200 or a Radio Frequency Identification (RFID) chip 200 embedded within the connector portion 201 of the cable 16. In addition, the connector portion 201 may include a first indicator 202, a second indicator 204, and a data transfer device 206.

The memory chip 200 may be run by a variety of algorithms that are a finite list of well-defined instructions for accomplishing some task that, given an initial state, will terminate in a defined end-state. The algorithm can be a recursive algorithm or a series or paralleled algorithm or any other appropriate type of algorithm according to the variables desired to be computed. One skilled in the art may envision any type of memory chip 200 embedded within the connector portion 201. Moreover, the connector portion 201 may be any type of connector. For example, the connector portion 201 may be a USB (Universal Serial Bus) connector, a serial connector, or a parallel connector.
The first indicator 202 may be a display for indicating to the user the number of uses of the ultrasonic treatment apparatus 10. The second indicator 204 may be a display for indicating to the user the number of uses remaining for the ultrasonic treatment apparatus 10. The first indicator 202 and the second indicator 204 may include a display such as a plasma display panel apparatus (PDP), a light emitting diode (LED) or an electroluminescent display apparatus (ELD). One skilled in the art may envision any type and/or any number of displays mounted on the connector portion 201 to provide visual and/or audio information to the user of the ultrasonic treatment apparatus 10. In addition, the first indicator 202 and the second indicator 204 may be presented in any type of preferred configuration.

The data transfer device 206 may be a radio-frequency (RF) means for transmitting data to a user's personal computer or to a physician's personal computer or to a network database. Preferably wireless communication is desired between the ultrasonic treatment apparatus 10 and the data transfer device 206. The wireless communication system may be utilized to facilitate communication between a wireless mobile unit (e.g., the ultrasonic treatment apparatus 10) and other wireless mobile or non-mobile units (e.g., a personal computer or a network), such as those attached to a public switched telephone network (PSTN). When the ultrasonic treatment apparatus 10 tracks, monitors, and verifies a plurality of variables (e.g., uses performed, uses remaining, etc.), such information may be transmitted via the data transfer device 206 to any desirable, compatible source. Thus, the data transfer device 206 can send information to a local source, such as a home owner's personal computer or send information directly to a physician's computer or to a network database.
Therefore, the memory chip 200 may be programmed in accordance with the patient regiment provided by the physician and can aid in timing out the regiment. For example, once a set amount of uses has been performed by the user of the ultrasonic treatment apparatus 10, the apparatus 10 can automatically time out and be rendered non-functional. As a result, the user must re-visit the physician in order to enact further regiments if necessary via the apparatus 10. Also, the user can monitor the number of uses performed and the number of uses remaining in accordance with the first indicator 202 and/or the second indicator 204 located on the connector portion 201 of the cable 16.

Moreover, the cable 16 is preferably a multi-conductor cable capable of transmitting relatively low frequency or optical signals, as well as digital signals. Cable 16 may include coaxial cable or other type of suitable shielded cable. Alternatively, cable 16 may include fiber optic cable for transmitting optical signals.

Referring to FIG. 2, an exploded view of the ultrasonic treatment apparatus in combination with a carrying means, in accordance to the present disclosure is presented. In FIG. 2, the numbers which are the same as those in FIG. 1 are denoted by the same reference numerals and a description of such elements is omitted.

The ultrasonic treatment apparatus with the carrying means 80 includes an ultrasonic treatment apparatus 10 and a carrying means 11.

The ultrasonic treatment apparatus 10 includes a Main Operating Unit (MOU) 12 and an Ultrasonic Transducer Treatment Module (Module) 14 connected to the MOU 12 by a cable 16.

The MOU 12 includes a housing 20, a display 30, a keypad 31, a smart card reader 50, a smart card reader slot 52, a smart card 54, and an alarm 62.
The Module 14 includes at least two slotted lugs 116. The Module 14 is further connected to a support fixture 102. The support fixture 102 is provided to maintain pressure against the skin of the patient. The support fixture 102 further aids in retaining and aligning the Module 14 to the targeted treatment area of the patient. The slotted lugs 116 of the Module 14 are provided to engage into the support fixture 102. Preferably, the support fixture 102 is configured to receive at least a portion of the Module 14, which is resealably secured to the patient.

The carrying means 11 includes a shoulder strap 9, a pouch 18, and a belt 19. The MOU 12 is ergonomically configured and constructed to fit with the pouch 18 which is worn by the patient using belt 19 and shoulder strap 9, as shown in FIGS. 2 and 3. The MOU 12 is preferably positioned within the pouch 19 and worn by the patient to permit portable operation of the ultrasonic treatment apparatus 10.

Referring to FIG. 3, a schematic illustration of the ultrasonic treatment apparatus attached to a patient via a harness, in accordance to the present disclosure is presented.

In FIG. 3, the numbers which are the same as those in FIGS. 1 and 2 are denoted by the same reference numerals and a description of such elements is omitted.

The ultrasonic treatment apparatus attached to a patient via a harness 40 includes a shoulder strap 9, a main operating unit (MOU) 12, an Ultrasonic Transducer Treatment Module (Module) 14 connected to the MOU 12 by a cable 16, a pouch 18, a belt 19, a smart card reader 50 having a smart card reader slot 52, a smart card 54, and a support fixture 102.

The MOU 12 is ergonomically configured and constructed to fit with a pouch 18 which is worn by the patient using belt 19 and shoulder strap 9, as shown in FIGS. 2 and
3. This configuration permits positioning of the Module 14 at the approximate external skin location of the bone injury in order to optimize the ultrasonic therapy received by the patient, while the patient simultaneously maintains maximum mobility.

Referring to FIG. 4, a schematic illustration of an ultrasonic treatment apparatus, in accordance with a second exemplary embodiment of the present disclosure is presented.

In FIG. 4, the numbers which are the same as those in FIGS. 1, 2, and 3 are denoted by the same reference numerals and a description of such elements is omitted.

The ultrasonic treatment apparatus 10 includes a Main Operating Unit (MOU) 12 and an Ultrasonic Transducer Treatment Module (Module) 14 connected to the MOU 12 by a cable 16.

The MOU 12 includes a housing 20, a display 30, a keypad 31, a wireless assembly 60, a wireless transmitting means 62, and a wireless receiving means 64, a wireless tag 66.

The wireless assembly 60 includes a wireless transmitting means 62 for transmitting information to the wireless receiving means 64. The wireless receiving means 64 may be a personal computer located in the patient's home or may be a computer located at a central medical facility for a physician to access.

The wireless transmitting means 62 can establish a wireless communication session with a wireless receiving means 64 through any type of wireless network. The present disclosure can farther comprise one or more location systems, which are associated with the wireless transmitting means 62, the wireless receiving means 64, and the wireless network. At least one of location system can generate location information.
pinpointing the location of the wireless transmitting means 62 during the wireless communication session. The location information may be generated using any known methods, such as with a Global Positioning System (GPS).

The Module 14 includes at least two slotted lugs 116. The Module 14 allows the treating of bone defects and injuries by preferably using pulsed radio-frequency ultrasonic signals applied to the skin of the patient and directed to the site of the bone defect or injury. The radio-frequency signal is preferably in the range of 1.3 to 2 MHz, and preferably consists of pulses at a repetition rate of 100 to 1,000 Hz, with each pulse preferably having a duration in the range 10 to 2,000 microseconds.

In addition to the many different configurations that Module 14 of MOU 12 may have, MOU 12 may have as many Modules 14 as are required for the specific ultrasonic therapy. For example, it is contemplated that ultrasonic treatment apparatus 10 may have three Modules 14. It is also contemplated that each of Module 14 may be designed to transmit ultrasound at different frequencies, and/or at different time intervals. This also depends on the desired treatment parameters for each individual patient.

Consequently, the ultrasonic treatment apparatus 10, allows a doctor, physician, therapist and the like, to prescribe an ultrasonic therapy regimen to a patient in an efficient manner. In addition, the ultrasonic treatment apparatus 10 permits a doctor, physician, therapist and the like to evaluate and monitor a patient's adherence to the prescribed ultrasonic therapy regimen. As a result, the physician can monitor a patient's adherence to the prescribed ultrasonic therapy. For example, if a patient should not complete the prescribed regimen, the ultrasonic treatment apparatus 10 records this non-compliance on the smart card 54. The physician can then determine the appropriate
measures to take with respect to the patient's regimen, that is, increase, decrease or
discontinue the ultrasonic therapy.

Where the ultrasound is carried on pulses rather than modulated continuously at a
low frequency, the range of duration for each ultrasonic pulse and the ultrasonic pulse
frequencies may be set. The treatment time may also be pre-set by the physician, via the
same prescription, so that the patient may simply position the Module 14 adjacent the
skin location, and turn the device on. Thus, it is contemplated that the ultrasound can be
modulated continuously at low or high frequencies depending on the patient's needs.

It is further envisioned that the present disclosure can be used with a variety of
other electronic health related apparatuses. For example, electronic health related
apparatuses, which include but are not limited to treadmills, bicycles, and the like can all
be designed to operate with the present disclosure.

Although the present disclosure has been described in accordance with the
embodiments shown, one of ordinary skill in the art will readily recognize that there
could be variations to the embodiment and these variations would be within the spirit and
scope of the present disclosure. Accordingly, many modifications may be made by one of
ordinary skill in the art without departing from the spirit and scope of the appended
claims.
WHAT IS CLAIMED IS:

1. A method for treating a patient by using an ultrasonic treatment apparatus having an operating unit in communication with an ultrasonic transducer treatment module, the method comprising:
   - performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer treatment module;
   - receiving first data relating to the treatment area of the patient;
   - processing the first data into second data via the operating unit;
   - transmitting the second data to a transferring device;
   - extracting the second data from the transferring device; and
   - evaluating adherence to prescribed ultrasonic therapy using the second data transmitted by and extracted from the transferring device.

2. The method according to Claim 1, wherein the second data includes at least number, date, time of day, and duration of treatment data.

3. The method according to Claim 2, wherein the second data is extracted by a medical facility for determining adherence of the patient to the prescribed ultrasonic therapy.
4. The method according to Claim 1, wherein the transferring device is in communication with the operating unit, the operating unit having at least one input means.

5. The method according to Claim 4, wherein the transferring device is a smart card and the input means is a smart card reader.

6. The method according to Claim 4, further comprising allowing the patient to carry the ultrasonic apparatus while performing the ultrasonic therapy.

7. The method according to Claim 4, further comprising notifying the patient of adherence to the prescribed ultrasonic therapy.

8. A method for treating a patient by using an ultrasonic treatment apparatus having an operating unit in communication with an ultrasonic transducer treatment module, the method comprising:

   performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer treatment module;

   receiving first data relating to the treatment area of the patient;

   processing the first data into second data via the operating unit;

   wirelessly transmitting the second data to a processing means;

   extracting the information from the processing means; and
evaluating adherence to prescribed ultrasonic therapy using the second data
wirelessly transmitted by and extracted from the processing means.

9. The method according to Claim 8, wherein the second data includes at least
number, date, time of day, and duration of treatment data.

10. The method according to Claim 8, wherein the processing means is in
communication with the operating unit, the operating unit having at least one wireless
transmitting means.

11. The method according to Claim 10, wherein the processing means is a personal
computer located at the patient's premises.

12. The method according to Claim 10, wherein the processing means is a central
processing station located at a medical facility for determining adherence of the patient to
the prescribed ultrasonic therapy.

13. The method according to Claim 10, wherein the wireless transmitting means
includes a radio frequency identification (RFID) tag.

14. The method according to Claim 10, further comprising allowing the patient to
carry the ultrasonic treatment apparatus while performing the ultrasonic therapy.
15. The method according to Claim 10, further comprising notifying the patient of adherence to the prescribed ultrasonic therapy.

16. An apparatus for treating a patient, the apparatus comprising:

- an operating unit; and
- an ultrasonic transducer treatment module connected to the operating unit for performing ultrasonic therapy to a treatment area of the patient via the steps of:
  - receiving first data relating to the treatment area of the patient;
  - processing the first data into second data via the operating unit;
  - transmitting the second data to a transferring device;
  - extracting the second data from the transferring device; and
  - evaluating adherence to prescribed ultrasonic therapy using the second data transmitted by and extracted from the transferring device.

17. The apparatus according to Claim 16, wherein the transferring device is in communication with the operating unit, the operating unit having at least one input means.

18. The apparatus according to Claim 17, wherein the transferring device is a smart card and the input means is a smart card reader.
19. The apparatus according to Claim 16, wherein the second data is extracted by a medical facility for determining adherence of the patient to the prescribed ultrasonic therapy.

20. An apparatus for treating a patient, the apparatus comprising:
   - an operating unit; and
   - an ultrasonic transducer treatment module connected to the operating unit for performing ultrasonic therapy to a treatment area of the patient via the steps of:
     - performing ultrasonic therapy to a treatment area of the patient via the ultrasonic transducer module;
     - receiving first data relating to the treatment area of the patient;
     - processing the first data into second data via the operating unit;
     - wirelessly transmitting the second data to a processing means;
     - extracting the information from the processing means; and
     - evaluating adherence to prescribed ultrasonic therapy using the second data wirelessly transmitted by and extracted from the processing means.

21. The apparatus according to Claim 20, wherein the transferring device is in communication with the operating unit, the operating unit having at least one input means.

22. The apparatus according to Claim 21, wherein the transferring device is a smart card and the input means is a smart card reader.
23. The apparatus according to Claim 20, wherein the second data is extracted by a medical facility for determining adherence of the patient to the prescribed ultrasonic therapy.

24. A connector for connecting two or more devices, the connector comprising:
   - a first end connected to a first device;
   - a second end connected to a second device, the second end being a receptacle for receiving an external connector of the second device; and
   - a housing for providing operable communication between the first end and the second end;
   wherein a central processing unit (CPU) is embedded within the housing of the connector.

25. The connector according to Claim 24, wherein the CPU is a memory chip.

26. The connector according to Claim 24, wherein the CPU is a Radio Frequency Identification (RFID) chip.

27. The connector according to Claim 24, wherein the connector further includes one or more display devices for displaying information.
28. The connector according to Claim 24, wherein the connector farther includes a data transfer device for transferring data to one or more external devices.

29. The connector according to Claim 24, wherein the first device is an Ultrasonic Transducer Treatment Module.

30. The connector according to Claim 24, wherein the second device is a Main Operating Unit.

31. The connector according to Claim 27, wherein the one or more display devices indicate to the user a number of uses performed.

32. The connector according to Claim 31, wherein the one or more display devices indicate to the user a number of uses remaining.

33. The connector according to Claim 32, wherein once the user performs a predetermined number of uses, the CPU is automatically disabled.

34. A method for connecting two or-more devices, the method comprising the steps of:
   connecting a first device to a first end of a connector;
   connecting a second device to a second end of the connector, the second end being a receptacle for receiving an external connector of the second device; and
providing operable communication between the first end and the second end via a housing;

wherein a central processing unit (CPU) is embedded within the housing of the connector.

35. The method according to Claim 34, wherein the CPU is a memory chip.

36. The method according to Claim 34, wherein the CPU is a Radio Frequency Identification (RFID) chip.

37. The method according to Claim 34, wherein the connector further includes one or more display devices for displaying information.

38. The method according to Claim 34, wherein the connector further includes a data transfer device for transferring data to one or more external devices.

39. The method according to Claim 34, wherein the first device is an Ultrasonic Transducer Treatment Module.

40. The method according to Claim 34, wherein the second device is a Main Operating Unit.
41. The method according to Claim 37, wherein the one or more display devices indicate to a user a number of uses performed.

42. The method according to Claim 41, wherein the one or more display devices indicate to the user a number of uses remaining.

43. The method according to Claim 42, wherein once the user performs a predetermined number of uses, the CPU is automatically disabled.