



(51) International Patent Classification:

A61B 5/00 (2006.01) *G16H 50/00* (2018.01)
A61B 5/053 (2021.01) *G16H 70/60* (2018.01)

(21) International Application Number:

PCT/US2023/079415

(22) International Filing Date:

10 November 2023 (10.11.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

18/054,192 10 November 2022 (10.11.2022) US

(71) Applicant: **NINURTA INC.** [US/US]; 26031 Center Ridge Road, Suite C, Westlake, OH 44145 (US).

(72) Inventors: **NEMEH, Issam**; 2511 Interlachen Lane, Westlake, OH 44145 (US). **NEMEH, Wadi**; 2511 Interlachen

Lane, Westlake, OH 44145 (US). **MERSHIN, Andreas**; 5 Lockeland Ave., Unit 2, Arlington, MA 02476 (US). **QUINN, Todd**; 310 Ashland Ave., Elyria, OH 44035 (US). **NEMEH, Deborah**; 2511 Interlachen Lane, Westlake, OH 44145 (US). **NEMEH, Fadia**; 2511 Interlachen Lane, Westlake, OH 44145 (US).

(74) Agent: **GALSTER, Garet, K.** et al.; Smith Keane LLP, N27W23960 Paul Rd., Suite 210, Pewaukee, WI 53072 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,

(54) Title: METHODS AND APPARATUS FOR ELECTRO-MERIDIAN DIAGNOSTICS

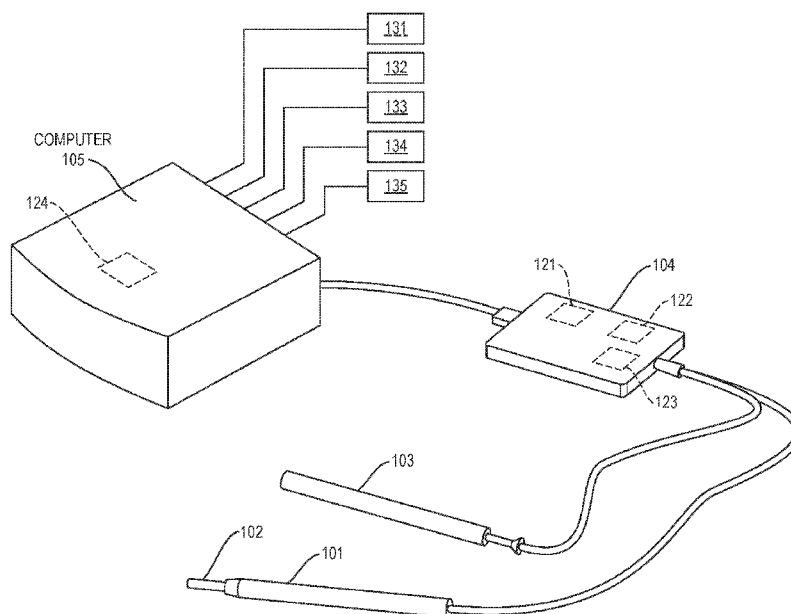


FIG. 1

(57) Abstract: A current sensor may take measurements of electrical currents that flow between two limbs of a mammal through at least a portion of the mammal's torso and/or an electrical stimulator may apply an electrical current dose thereto. Current measurements may be taken during a single diagnostic session while a ground electrode contacts the body at a preferably distal location on a limb and a probe electrode is sequentially placed at different locations on distal portions of other limbs. Each of the current delivery locations may be an acupuncture point. An electrical current state for the diagnostic session may be calculated. A lookup table may be used to determine one or more associated possible medical conditions and electrical current dosage may be used in an attempt to alter bodily electrical conductivity.

RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

- (84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- *with international search report (Art. 21(3))*
- *with information concerning one or more priority claims considered void (Rule 26bis.2(d))*

Methods And Apparatus for Electro-Meridian Diagnostics

Summary of the Invention

5 In illustrative implementations, a diagnostic system employs a current sensor to screen for and to detect a wide variety of medical conditions. The current sensor may take measurements of small applied electrical currents that flow between a probe electrode and a ground electrode, while an animal (e.g. human or mammal) holds the ground
10 electrode in one hand (or the ground electrode electrically contacts the animal body at a distal portion of a limb) and the probe electrode is sequentially placed at different locations on the patient's two feet and on the patient's other forearm. These cross-body currents may flow through at least a portion of the patient's torso. The ground electrode
15 may be switched from one hand to another, to enable current measurements to be taken for both forearms.

The measurements of electrical current may be taken during a single diagnostic session. Each of the measurement locations may be an acupuncture point.

20 Based on the measurements, an electrical current state for the diagnostic session may be calculated. This state may consist of: (a) a current range for an electrical current that is measured during the session; or (b) current ranges for respective currents that are measured during the session. A lookup table may be employed to determine one or
25 more medical conditions that are indicated by the current state. Alternatively, a trained machine learning model may predict, based on the measured currents, one or more medical conditions.

In some cases, the diagnostic system determines whether or not a patient has a viral infection and whether or not a patient has a bacterial infection, based on electrical current measurements that take
30 only a few minutes. This ability to quickly and accurately detect and differentiate between viral and bacterial infections enables the diagnostic system to be used as a mass-scale, rapid screening tool in a viral or bacterial epidemic. For instance, during the COVID-19 pandemic,
35 the diagnostic tool may be used to quickly determine whether a patient has a viral or bacterial infection or both, and if a viral infection is indicated, to refer the patient for a panel of respiratory virus tests, including a COVID-19 assay.

In some cases, the ground electrode and probe electrode are

- 2 -

attached to flexible wires and are free to move relative to each other.

Alternatively, in some cases, the ground electrode and probe electrode are rigid parts of a single rigid structure and thus are in a fixed position relative to each other. The rigid structure may be configured to also serve as a case for a smartphone. The rigid structure may enable a patient to hold both the probe electrode and ground electrode in one hand. For instance, the patient may hold the rigid structure in such a way that the ground electrode of the rigid structure is pressed against the palm of one hand, while the patient sequentially presses the probe electrode at different points on the patient's left foot, right foot and other forearm.

In some cases, one or more pressure sensors measure how much pressure is being applied to the probe and/or ground electrodes. These pressure readings, as well as current readings by the current sensor, may be employed to determine whether the electrodes are being pressed properly against the patient's skin to achieve sufficient conductance for accurate measurements. In some cases, the ground electrode and probe electrode are rigid parts of a single rigid structure and thus are in a fixed position relative to each other, except for any movement that is due solely to displacements that occur within one or more pressure sensors.

A user interface (UI) may present to a user: (a) information about the measurements; (b) a diagnosis or tentative diagnosis; and/or (c) a recommendation for further medical testing. In addition, the UI may provide real-time audiovisual feedback to a user regarding whether the electrodes are being used properly.

The Summary and Abstract sections and the title of this document: (a) do not limit this invention; (b) are intended only to give a general introduction to some illustrative implementations of this invention; (c) do not describe all of the details of this invention; and (d) merely describe non-limiting examples of this invention. This invention may be implemented in many other ways. Likewise, the Field of Technology section is not limiting; instead it identifies, in a general, non-exclusive manner, a field of technology to which some implementations of this invention generally relate.

Brief Description of the Drawings

Figure 1 shows a current sensor which has ground and probe electrodes that are free to move relative to each other.

Figure 2 shows electrodes of a current sensor being employed

to measure cross-body electrical currents.

Figures 3, 4 and 5 show rigid structures that each include both ground and probe electrodes.

Figure 6 shows a spring-loaded electrode.

5 Figures 7, 8, 9, 10A and 10B show measurement points.

Figure 11 illustrates cross-body currents.

Figure 12 is a flowchart for a diagnostic method.

Figure 13 is a diagram that illustrates a relational database.

10 Figures 14A-D shows measurement points located on representative non-human animals.

The above Figures are not necessarily drawn to scale. The above Figures show illustrative implementations of this invention, or provide information that relates to those implementations. The examples shown in the above Figures do not limit this invention. This invention
15 may be implemented in many other ways.

Description of the Preferred Embodiment

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may
20 be embodied in other specific structures. While the preferred embodiment has been described, the details may be changed without departing from the invention.

Current Sensor

In illustrative implementations of this invention, a current
25 sensor measures what we sometimes call "cross-body" electrical currents. In some cases, the cross-body currents are electrical currents that flow between distal regions of two limbs of a patient, passing through at least a portion of the patient's torso. In some use scenarios, the current sensor measures a cross-body electrical current that flows
30 between: (a) skin on a patient's hand; and (b) skin on a foot or ankle of the patient. In other use scenarios, the current sensor measures a cross-body electrical current that flows between: (a) skin of a hand of a patient's forearm; and (b) skin of a hand or wrist of the patient's other forearm. In each of the preceding examples, the cross-body
35 electrical current may flow through at least a portion of the patient's torso. In some use scenarios, the current sensor measures cross-body electrical currents that pass through the sagittal plane and/or transpyloric plane of the patient's body.

In some use scenarios, the cross-body electrical currents are

- 4 -

very small in magnitude. For instance, in some cases, these electrical currents are in a range from 0.1 microamperes to 500 microamperes, or in a range from 0.1 microamperes to 300 microamperes. Preferably, where used, a DC current does not exceed 400 microamperes. Alternatively or
5 additionally, AC currents may be employed that preferably range from 0.1 milliamperes to 400-500 milliamperes and up to about 100 hertz frequency.

In some implementations, the current sensor measures cross-body currents while: (a) a patient holds a ground electrode; and (b) a probe electrode is positioned at different locations on the patient's
10 skin to apply a diagnostic electric current (preferably about 200 to about 500 microamperes) to such locations for a predetermined amount of time, such as about three to about five seconds. For instance, cross-body currents may be measured while the probe electrode is located at 24 different locations on the patient's limbs, one location at a time.
15 The 24 probe locations may consist of: (a) six locations on the right foot and six corresponding locations on the left foot; and (b) six locations on the right hand (or right wrist) and six corresponding locations on the left hand (or left wrist).

In some cases, the current sensor has ground and probe
20 electrodes that are not in a fixed position relative to each other. Put differently, in some cases, the ground and probe electrodes are free to move relative to each other.

Figure 1 shows a current sensor which has ground and probe electrodes that are not in a fixed position relative to each other. In
25 Figure 1, a current sensing system includes a ground electrode 103, a probe electrode 101, and module 104. The ground and probe electrodes are each connected to flexible wires and may move relative to each other. Ground electrode 103 is configured to be held by a patient directly against the skin of the patient's hand, while the current sensor measures
30 cross-body currents that flow through the patient. Probe electrode 101 has a conductive tip 102 that is configured to be pressed directly against the patient's skin at each of multiple measurement points, one measurement location at a time. The main body of probe electrode 101 (other than conductive tip 101) may be covered by a thin insulative
35 sheath.

In Figure 1, wires may electrically connect the ground and probe electrodes with module 104. Module 104 may house (among other things) power circuitry 123, ammeter 122 and a microprocessor 121. The power circuitry 123 may include a power source, a (non-ideal) current

- 5 -

source or a (non-ideal) voltage source or may otherwise generate or modulate a cross-body electrical current. Power circuitry 123 may in turn receive power from computer 105.

5 The cross-body electrical currents (which are generated by the power circuitry 123 and that flow between the ground and probe electrodes through a patient's body) may be either DC currents (direct currents) or AC currents (alternating currents). In some cases, microprocessor 121 includes a signal generator. This signal generator: (a) may comprise an oscillator, function generator, waveform generator, or digital pattern generator; and (b) may be employed to control timing and duration of a DC or AC cross- body current.

10 In Figure 1, ammeter 122 may comprise any type of current sensor or ammeter, including any type of digital ammeter. For instance, ammeter 122 may employ a shunt resistor to produce an analog voltage that is proportional to current and this voltage may in turn be measured by a digital voltmeter, which employs an ADC (analog- to-digital converter) to convert analog voltage to digital data. In some cases, ammeter 122 includes a current sense amplifier, which comprises a differential amplifier with a matched resistive gain network that monitors current flow by measuring current drop across a sense element, such as a shunt resistor. The current sense amplifier may include an integrated current-sense resistor. In some other cases, ammeter 122 comprises a Hall effect current sensor, transformer current sensor, current clamp sensor, fluxgate transformer current sensor, moving coil ammeter, moving magnet ammeter, or electrodynamic ammeter. Ammeter 122 may produce an analog voltage that is calibrated to be proportional to current, and an ADC may convert this analog voltage to digital data.

20 In Figure 1, ammeter 122 may output digital data that represents measurements of cross-body electrical currents that are taken at different points on the patient's limbs. Microprocessor 121 may analyze this digital data.

25 In Figure 1, computer 105 controls and interfaces with microprocessor 122, and may further analyze data. Computer 105 may store data in, and access data from, a memory device 124. Computer 105 may interface with a set of input/output (I/O) devices, including a microphone 131, speaker 132, electronic display screen 133 (e.g., a touch screen, computer monitor, or laptop screen), keyboard 134 and mouse 135.

In some use scenarios, a health-care worker holds probe

electrode 101 and presses it against different points in the patient's skin, while the patient holds ground electrode 103. At each of the measurement locations, a cross-body electrical current may be measured. For instance, while the patient holds the ground electrode 103 in the palm of one hand with fingers curling around the ground electrode, the health-care worker may hold probe electrode 101 and press it against a sequence of 24 locations on the patient's body, one location at a time. As a non-limiting example, the health-care worker may first press probe electrode 101 against six locations on the patient's right foot, then against six locations on the patient's left foot, then against six locations on the user's right hand or wrist, and then against six locations on the user's left hand or wrist. The current sensor may measure cross-body currents that flow when the probe electrode is at each of these different measurement locations.

In the example shown in Figure 2, a health care worker may administer the diagnostic test to a patient. Specifically, in Figure 2: (a) a patient may hold ground electrode 103 in the palm of a hand 112 with fingers gripping and wrapped around the ground electrode; while (b) a health care worker (not shown) presses the conductive tip 102 of probe electrode 101 against the skin of the patient's other forearm 111.

In some use scenarios, a patient may self-administer at least a portion of the diagnostic test. For instance, while the patient holds the ground electrode 103 in one hand, the patient may hold probe electrode 101 in the other hand and may press it against six locations in the patient's right foot and six locations in the patient's left foot.

However, the apparatus shown in Figure 1 is not well-suited for a patient himself or herself to take measurements of cross-body currents that occur at hand or wrist measurement points. This is because it can be difficult for the patient to hold the ground electrode and probe electrode in the same hand while pressing the probe electrode against the hand or wrist of the patient's other forearm. When the patient grips the ground electrode in the palm of a hand (with fingers wrapped around the ground electrode), it may be difficult for the patient to also hold the probe electrode in the fingers of the same hand.

In some implementations of this invention, this problem is solved by employing a current sensor in which the ground electrode and probe electrode are parts of a single rigid structure and thus are in a fixed position relative to each other. The patient may hold the rigid

- 7 -

structure in one hand, with the ground electrode portion of the rigid structure pressed against the palm of that hand, while pressing the probe electrode portion of the rigid structure against the skin of another extremity. For instance, a user may hold the rigid structure in the right hand with the ground electrode pressed against the skin of the right hand, while pressing the probe electrode first against six locations on the right foot, then against six locations on the left foot, and then against six locations on the left hand. Then the user may hold the rigid structure in the left hand, while pressing the probe electrode portion of the rigid structure against six locations on the right hand. At each of the different measurement locations, the current sensor may measure a cross- body electrical current.

Figures 3, 4 and 5 show rigid structures that each: (a) are part of a current sensor; and (b) include both ground and probe electrodes.

In the example shown in Figure 3, rigid structure 300 is configured to fit tightly around, and to hold in place, a smartphone. Put differently, rigid structure 300 may function in part as a rigid case that partially surrounds, and holds in place, a smartphone. Rigid structure 300 has a back 330 and walls 301. A smartphone may be inserted into a recessed region 340 of structure 300, in such a way that: (a) the smartphone presses against back 330 of structure 300; and (b) lateral movement of the smartphone is constrained by walls 301. Walls 301 may snap-fit around or press tightly against the smartphone, causing the smartphone to remain in recessed region 340 unless a user pulls on the smartphone to remove it from the recessed region. Back 330 has holes 332, 333, in order to reduce the weight of structure 300.

In Figure 3, rigid structure 300 also includes a probe electrode 320 and a ground electrode 390. In Figure 3, probe electrode 320 and a ground electrode 390 are rigid parts of a single rigid structure and thus are in a fixed position relative to each other. Probe electrode 320 includes a conductive tip 323. Ground electrode 390 (hidden from view in Figure 3) and recessed region 340 are on opposite sides of back 330.

A patient: (a) may hold rigid structure 300 in one hand, in such a way that ground electrode is pressed against skin of the palm of that hand, and (b) may press the conductive tip 323 of probe electrode 322 against locations on the skin of other extremities. For instance, the patient may hold rigid structure 300 in the patient's left hand,

- 8 -

while pressing tip 323 against a sequence of locations, such as six locations on the patient's right foot, then six locations on the patient's left foot, and then six locations on the patient's right forearm. The patient may then hold the rigid structure in the right hand, and press tip 323 against a sequence of six locations on the patient's left forearm. The current sensor may measure cross-body currents when the probe electrode is at each of these different locations.

Figures 4 and 5 show a front view and back view, respectively, of a rigid structure 400. Rigid structure 400 functions in part as a case for a smartphone. Walls 401 and back 490 form a recessed region into which a smartphone 450 may be inserted. Smartphone 450 may include touch screen 451.

In the example shown in Figures 4 and 5, rigid structure 400 includes a probe electrode 420 with a conductive tip 423, and also includes a ground electrode. This ground electrode has six conductive pads 452, 453, 454, 480, 481, 470. Again, a patient may hold rigid structure 400 in one hand, with ground electrode pressed against the skin of the palm of that hand, while pressing the probe electrode 420 against the skin at different locations on other extremities of the patient's body. The current sensor may measure cross-body currents at each of these measurement locations. An electronics module 460 may include an ADC, other signal processing circuitry and a microcontroller. Electronics module 460 may include an ammeter. The hardware and functionality of the ammeter in electronics module 460 may be the same as described above with respect to ammeter 122. An interface module 461 may include electronic components and other circuitry for interfacing with the smartphone. In some cases, interface module 461 is self-cleaning or self-polishing. For instance, interface module 461 may include pliant layers that tend to scrape debris off of conducting electrodes when the smartphone (or other mobile computing device) is being inserted into the recessed region of the rigid structure 400. These pliant layers may comprise Teflon®.

In some use scenarios, it is desirable to measure how forcefully the ground electrode and/or probe electrode are being pressed against skin of the patient. This is because the amount of pressure exerted by an electrode against the patient's skin may significantly affect the current measurements. For example, if a patient presses against the ground electrode much harder when the probe electrode is in

- 9 -

a first position than when the probe electrode is in a second position, the extra pressure in the first position may, unless corrective measures are taken, cause current measurements at the two positions to be incomparable.

5 In some implementations, this problem (different amounts of pressure exerted by the user affects magnitude of current measurements) is mitigated by employing a pressure sensor that measures the amount of force or pressure exerted against a ground electrode or probe electrode. For instance, the ground electrode or probe electrode may include or be
10 attached to a pressure sensor. For instance, each of the six conductive pads 452, 453, 454, 480, 481, 470 of the ground electrode in Figures 4 and 5 may include or be attached to a pressure sensor. Any type of pressure sensor may be employed. For example, the pressure sensor may comprise: (a) a piezoresistive strain gauge; (b) a capacitive strain
15 gauge (e.g., a variable capacitor in which capacitance decreases as a diaphragm deforms due to increasing pressure); (c) an electromagnetic pressure sensor (e.g., that measures displacement of a diaphragm by changes in inductance, or by Hall Effect, or by eddy current); (d) an optical strain gauge (e.g., that employs fiber Bragg gratings); or (e)
20 a potentiometric strain gauge (e.g., in which change of position of a conductive element causes a change in resistance). Each time that a cross-body current is measured, the pressure sensor may measure pressure (or force) exerted against the probe electrode or the ground electrode.

 In some cases, the ground electrode and probe electrode are
25 rigid parts that are part of a rigid single structure and that thus are in a fixed position relative to each other, except for any movement that occurs due to varying displacement within a pressure sensor due to varying pressure or force exerted against the pressure sensor.

 Alternatively: (a) smartphone 450 may be replaced by any
30 other mobile computing device; and (b) rigid structure 400 may be a case that surrounds, and holds in place, the mobile computing device. For instance, the mobile computing device may be a tablet computer, notebook computer, mobile internet device, personal digital assistant, handheld PC, or ultra-mobile PC.

35 Figure 6 shows a closeup view of the spring-mounted pad 491, which is part of a ground electrode. This spring-mounted pad includes a conductive tip 492, a spring 495, a rod 493, and a pressure sensor 494. For instance, pressure sensor 494 may comprise a piezoelectric, inductive, potentiometric or optical pressure sensor. Rod 493 is

- 10 -

physically attached to conductive tip 492. Pressure exerted against conductive tip 492 causes the tip 492 and rod 493 to be displaced. Specifically, tip 492 and rod 493 are constrained to move along a single axis in a limited range of motion. Varying displacement of rod 493 is measured, as a proxy for the pressure (or force) exerted against tip 492.

Each of six conductive pads 452, 453, 454, 480, 481, 470 of the ground electrode in Figures 4 and 5 may be spring-mounted, in the manner shown in Figure 6.

In Figures 1, 2, 3, 4 and 5, one or both of the ground electrode and tip of the probe electrode may comprise a metallic alloy (e.g., copper/silver) that has antibacterial and antiviral properties. Alternatively, one or both of the ground electrode and tip of the probe electrode may comprise conductive rubber.

In some implementations, the ground electrode is temporarily attached to a patient's skin, rather than being held by a patient. For instance, the ground electrode may have an adhesive, conductive surface that adheres to the patient's skin. In some cases: (a) the ground electrode has multiple pads, and (b) each of the pads has a sticky, conductive surface that clings to the patient's skin.

In some alternative implementations, skin conductivity (or resistance) is measured instead of measuring current that flows through a patient's body between two electrodes. For instance, in some implementations, skin conductivity (or resistance) is measured by an infrared or optical sensor. In some cases, the sensor that measures skin conductivity (or resistance) does not contact the patient's skin. For example, a contact-less infrared or optical sensor may be employed to measure skin conductivity.

Measurement Locations

Before discussing measurement locations, let us first define "forearm" and "leg". As used herein, "forearm" means the portion of an upper limb of a human that is distal to the elbow. Thus, a forearm includes: (a) a hand; (b) a wrist; and (c) a region between elbow and wrist. As used herein, "leg" means the portion of a lower limb of a human that is distal to the knee. Thus, a leg includes a crus, an ankle and a foot.

As noted above, the current sensor may measure the cross-body electrical currents while the probe electrode is positioned at 24 locations on the skin of the patient's extremities, one location at a

time. The measurement locations may consist of: (a) six locations on the right foot and six corresponding locations on the left foot; and (b) six locations on the right hand (or right wrist) and six corresponding locations on the left hand (or left wrist).

5 Figures 7, 8, and 9 show six locations 701, 702, 703, 704, 705, 706 on the right foot, at which the probe electrode may be placed (one location at a time) while the current sensor measures cross-body currents. These six locations on the right foot are positioned on acupuncture meridians. Specifically, locations 701, 702, 703, 704, 705,
10 706 are positioned on the Spleen, Liver, Kidney, Bladder, Gall Bladder, and Stomach acupuncture meridians, respectively. In acupuncture terminology: (a) location 701 is sometimes called SP3 or Spleen 3; (b) location 702 is sometimes called LR3 or Liver 3; (c) location 703 is sometimes called KI4 or Kidney 4; (d) location 704 is sometimes called
15 BL65 or Bladder 65; (e) location 705 is sometimes called GB40 or Gall Bladder 40; and (f) location 706 is sometimes called ST42 or Stomach 42.

 Likewise, the probe electrode may be placed (one location at a time) at six locations on the left foot, while the current sensor measures cross-body currents. These first, second, third, fourth, fifth
20 and sixth locations on the left foot may be bilaterally symmetric with locations 701, 702, 703, 704, 705, and 706, respectively, on the right foot. Put differently, these first, second, third, fourth, fifth and sixth locations on the left foot of a patient may have reflectional symmetry (about the patient's sagittal plane) with locations 701, 702,
25 703, 704, 705, and 706, respectively, on the right foot of the patient. These six locations on the left foot may be positioned on the same acupuncture meridians - and have the same acupuncture meridian point numbers - as the respective corresponding locations on the right foot. For instance, the location on the left foot that is bilaterally symmetric
30 with location 701 may be on the Spleen acupuncture meridian and may also be called SP3 or Spleen 3.

 Figures 10A and 10B show six locations 801, 802, 803, 804, 805, 806 on the right forearm, at which the probe electrode may be placed (one location at a time) while the current sensor measures cross-body
35 currents. These six locations on the right forearm are positioned on acupuncture meridians. Specifically, locations 801, 802, 803, 804, 805, 806 are positioned on the Lung, Pericardium, Heart, Small Intestine, Triple Heater and Large Intestine acupuncture meridians, respectively. In acupuncture terminology: (a) location 801 is sometimes called LU9 or

Lung 9; (b) location 802 is sometimes called PC7 or Pericardium 7; (c) location 803 is sometimes called HT7 or Heart 7; (d) location 804 is sometimes called SI5 or Small Intestine 5; (e) location 805 is sometimes called TH4 or Triple Heater 4; and (f) location 806 is sometimes called
5 LI5 or Large Intestine 5.

Likewise, the probe electrode may be placed (one location at a time) at six locations on the left forearm, while the current sensor measures cross-body currents.

These first, second, third, fourth, fifth and sixth locations
10 on the left forearm may be bilaterally symmetric with locations 801, 802, 803, 804, 805, and 806, respectively, on the right forearm. Put differently, these first, second, third, fourth, fifth and sixth locations on the left forearm of a patient may have reflectional symmetry (about the patient's sagittal plane) with locations 801, 802, 803, 804,
15 805, and 806, respectively, on the right forearm of the patient. These six locations on the left forearm may be positioned on the same acupuncture meridians - and have the same acupuncture point numbers - as the respective corresponding locations on the right forearm. For instance, the location on the left forearm that is bilaterally symmetric
20 with location 801 may be on the Lung acupuncture meridian and may also be called LU or Lung 3.

As used herein, "Prototype Measurement Locations" means the 24 locations that are mentioned in the preceding four paragraphs (i.e., twelve locations 701, 702, 703, 704, 705, 706, 801, 802, 803, 804, 805,
25 and 806 on the right side of a patient and twelve bilaterally symmetric locations on the left side of a patient).

Alternatively, the probe electrode may be placed at other acupuncture points. For each Prototype Measurement Location, another acupuncture point on the same meridian may be used instead. Put
30 differently, rather than place the probe electrode at a Prototype Measurement Point on a given meridian, the probe electrode may instead be placed on another acupuncture point on the same meridian. For example, rather than place the probe electrode at a Prototype Measurement Point that is on a forearm and on a given meridian, the probe electrode may
35 instead be placed on another acupuncture point that is on the same forearm and on the same meridian. Likewise, rather than place the probe electrode at a Prototype Measurement Point that is on a given meridian and is distal to a knee, the probe electrode may instead be placed on another acupuncture point that is on the same meridian and is distal to

the same knee.

For instance: (a) to measure a cross-body electrical current for a Spleen meridian, the probe electrode may be placed at an acupuncture point that is on the Spleen meridian and is distal to a knee (e.g., at any of Spleen meridian points SP1 to SP8, inclusive); (b) to measure a cross-body electrical current for a Liver meridian, the probe electrode may be placed at an acupuncture point that is on the Liver meridian and is distal to a knee (e.g., at any of Liver meridian points LR1 to LR6, inclusive); (c) to measure a cross-body electrical current for a Kidney meridian, the probe electrode may be placed at an acupuncture point that is on the Kidney meridian and is distal to a knee (e.g., at any of Kidney meridian points KI 1 to KI 9, inclusive); (d) to measure a cross-body electrical current for a Bladder meridian, the probe electrode may be placed at an acupuncture point that is on the Bladder meridian and is distal to a knee (e.g., at any of Bladder meridian points BL55 to BL67, inclusive); (e) to measure a cross-body electrical current for a Gall Bladder meridian, the probe electrode may be placed at an acupuncture point that is on the Gall Bladder meridian and is distal to a knee (e.g., at any of Gall Bladder meridian points GB35 to GB44, inclusive); (f) to measure a cross-body electrical current for a Stomach meridian, the probe electrode may be placed at an acupuncture point that is on the Stomach meridian and is distal to a knee (e.g., at any of Stomach meridian points ST36 to ST45, inclusive); (g) to measure a cross-body electrical current for a Lung meridian, the probe electrode may be placed at an acupuncture point that is on the Lung meridian and is distal to an elbow (e.g., at any of Lung meridian points LU6 to LU11, inclusive); (h) to measure a cross-body electrical current for a Pericardium meridian, the probe electrode may be placed at an acupuncture point that is on the Pericardium meridian and is distal to an elbow (e.g., at any of Pericardium meridian points PC4 to PC9, inclusive); (i) to measure a cross-body electrical current for a Heart meridian, the probe electrode may be placed at an acupuncture point that is on the Heart meridian and is distal to an elbow (e.g., at any of Heart meridian points HT4 to HT9, inclusive); (j) to measure a cross-body electrical current for a Small Intestine meridian, the probe electrode may be placed at an acupuncture point that is on the Small Intestine meridian and is distal to an elbow (e.g., at any of Small Intestine meridian points SI 1 to SI 7, inclusive); (k) to measure a cross-body electrical current for a Triple Heater meridian, the probe

electrode may be placed at an acupuncture point that is on the Triple Heater meridian and is distal to an elbow (e.g., at any of Triple Heater meridian points TH1 to TH9, inclusive); and (1) to measure a cross-body electrical current for a Large Intestine meridian, the probe electrode
5 may be placed at an acupuncture point that is on the Large Intestine meridian and is distal to an elbow (e.g., at any of Large Intestine meridian points LI 1 to LI 9, inclusive).

Alternatively, in some implementations, less than 24 measurement locations are employed in a single diagnostic session. For
10 instance, in some cases, the probe electrode is positioned (at different times during a single diagnostic session) at a total of 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12 locations, while the current sensor measures cross-body electrical currents. In some cases: (a) the probe electrode is placed at 12 or less measurement locations during a single diagnostic
15 session; and (b) half of the locations are on a right limb and half are on a left limb in bilaterally symmetric locations. In some cases, during a single diagnostic session, the probe electrode is placed at 12 or less measurement locations that are all on one or two forearms of the patient. For instance, in some cases, during a single diagnostic session, the
20 probe electrode is placed at only 12 or less locations, all of which are on one or two wrists of the patient.

In some alternative implementations of this invention, the measurement locations are not on acupuncture points and are not located on acupuncture meridians. Put differently, when taking measurements of
25 cross-body currents, the probe electrode may be pressed against the patient's skin at locations that are not acupuncture points and that are not on acupuncture meridians.

Currents

As used herein, a "Prototype Current" means an electrical
30 current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of another limb of the patient at a Prototype Measurement Location.

As used herein, an "SP current" means an electric current
35 between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Spleen acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may

be a Spleen 3 acupuncture point (e.g., location 701 on the patient's right leg in Figure 7 or a bilaterally symmetric location on the patient's left leg).

As used herein, an "LR current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Liver acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Liver 3 acupuncture point (e.g., location 702 on the patient's right leg in Figure 8 or a bilaterally symmetric location on the patient's left leg).

As used herein, a "KI current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Kidney acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Kidney 4 acupuncture point (e.g., location 703 on the patient's right leg in Figure 7 or a bilaterally symmetric location on the patient's left leg).

As used herein, a "BL current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Bladder acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Bladder 65 acupuncture point (e.g., location 704 on the patient's right leg in Figure 9 or a bilaterally symmetric location on the patient's left leg).

As used herein, a "GB current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Gall Bladder acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Gall Bladder 40 acupuncture point (e.g., location 705 on the patient's right leg in Figure 9 or a bilaterally symmetric location on the patient's left leg).

As used herein, an "ST current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a patient; and (b) the probe electrode is touching skin of a leg of the patient at a location on the Stomach acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Stomach 42 acupuncture point (e.g., location 706 on the patient's right leg in Figure 8 or a bilaterally symmetric location on the patient's left leg).

As used herein, an "LU current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Lung acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Lung 9 acupuncture point (e.g., location 801 on the patient's right forearm in Figure 10A or a bilaterally symmetric location on the patient's left forearm).

As used herein, a "PC current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Pericardium acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Pericardium 7 acupuncture point (e.g., location 802 on the patient's right forearm in Figure 10A or a bilaterally symmetric location on the patient's left forearm).

As used herein, an "HT current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Heart acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Heart 7 acupuncture point (e.g., location 803 on the patient's right forearm in Figure 10A or a bilaterally symmetric location on the patient's left forearm).

As used herein, an "SI current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of

a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Small Intestine acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Small Intestine 5 acupuncture point (e.g., location 804 on the patient's right forearm in Figure 10B or a bilaterally symmetric location on the patient's left forearm).

As used herein, a "TH current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Triple Heater acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Triple Heater 4 acupuncture point (e.g., location 805 on the patient's right forearm in Figure 10B or a bilaterally symmetric location on the patient's left forearm).

As used herein, an "LI current" means an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of the opposite forearm of the patient at a location on the Large Intestine acupuncture meridian. As a non-limiting example, the location mentioned in the preceding sentence may be a Large Intestine 5 acupuncture point (e.g., location 806 on the patient's right forearm in Figure 10B or a bilaterally symmetric location on the patient's left forearm).

As used herein: (a) "right side" of a patient means the portion of the patient's body to the right of the patient's sagittal plane; (b) "left side" of a patient means the portion of the patient's body to the left of the patient's sagittal plane; (c) a current "on the right side" means a current that is measured while the probe electrode is placed at a measurement location on a patient's right side; and (d) a current "on the left side" means a current that is measured while the probe electrode is placed at a measurement location on a patient's right side. To say that a current is in a specific current range "on both sides" means that the current is in the specific current range when measured while the probe electrode is positioned at a measurement location on the right side and also in the same current range when measured while the probe electrode is positioned at a bilaterally symmetric location on the left side.

Figure 11 shows cross-body currents, in an illustrative

implementation of this invention. In Figure 11, sagittal plane 1121 divides a patient's body into right and left sides. Transverse plane 1120 intersects the patient's navel and divides the patient's body into upper and lower halves.

5 In Figure 11, a first cross-body electric current flows between: (a) a probe electrode that touches the patient's left foot at location 1102; and (b) a ground electrode that touches the patient's right palm at location 1101. This first current passes through both sagittal plane 1121 and transverse plane 1120.

10 In Figure 11, a second cross-body electric current flows between: (a) a probe electrode that touches the patient's right foot at location 1103; and (b) a ground electrode that touches the patient's right palm at location 1101. This second current passes through transverse plane 1120.

15 In Figure 11, a third cross-body electric current flows between: (a) a probe electrode that touches the patient's left forearm at location 1104; and (b) a ground electrode that touches the patient's right palm at location 1101. This third current passes through sagittal plane 1121 and, depending on the positions of the user's hands, may also
20 pass through transverse plane 1120.

Current Ranges

 In some implementations, during a single diagnostic session, the current sensor (e.g., 122) takes multiple measurements of electrical current at each measurement location. Put differently, the current
25 sensor may take multiple measurements of electrical current at each point on the patient's skin where the probe electrode is placed.

 Each of these current measurements may be calibrated. For instance, the current measurements may be calibrated based on simultaneous pressure measurement(s) that is/are indicative of pressure
30 or force exerted against the probe electrode or ground electrode. The calibration may eliminate the impact of varying pressure or force on the magnitude of the current readings.

 The calibrated measurements for a single measurement location may be filtered to eliminate outliers.

35 Thus, for each single measurement location, multiple calibrated, filtered current measurements may be taken.

 The measurements for a single measurement location may (after any calibration and/or filtering) be averaged, to yield an average value for that measurement location. For instance, the current sensor may

take 20 measurements of SP current while:

(a) the ground electrode is touching the same region of skin on a hand of a patient; and

(b) the probe electrode is touching the patient's skin at location 701 on the patient's right leg. These 20 measurements of SP current may (after any calibration and/or filtering) be averaged, resulting in an average SP current.

This process of calculating an average current for each measurement location may be repeated for multiple measurement locations on a single patient during a single diagnostic session. In some cases: (a) current measurements are taken at 24 different measurement locations on a single patient during a single diagnostic session; and (g) 24 average currents are calculated, one for each of the 24 measurement locations.

The average values for the respective measurement locations for the diagnostic session may then be averaged, resulting in an overall average current for the patient for the diagnostic session. For instance, in some cases: (a) there are 24 measurement locations; and (b) the overall average current is an average of the 24 average currents for the respective 24 measurement locations.

A set of current ranges for the patient for the diagnostic session may then be calculated. In some cases, we call these current ranges: (a) "way above average"; (b) "above average"; (c) "average"; (d) "below average" and (e) "way below average". The amperage in the "way above average" range is greater than in the "above average" range, which in turn is greater than in the "average" range, which in turn is greater than in the "below average" range, which in turn is greater than in the "way below average" range.

In some implementations: (a) the "average range" is selected in such a way as to be centered on the overall average current; and (b) the magnitude of the difference (in amperes) between the lower bound of the "way above average" range and the upper bound of the "average" range is equal to the magnitude of the difference (in amperes) between the lower bound of the "average" range and the upper bound of the "way below average" range.

In some implementations, one or more computers calculate, based on the overall average current for a patient for a diagnostic session, what we call Prototype Current Ranges for the patient for the diagnostic session.

As used herein, "Prototype Current Ranges" for a diagnostic session mean a set of current ranges in which: (a) the set consists of five current ranges, specifically, a "way above average" range, an "above average" range, an "average" range, a "below average" range, and a "way below average" range; (b) amperage in the way above average range is greater than amperage in the above average range, which in turn is greater than amperage in the average range, which in turn is greater than amperage in the below average range, which in turn is greater than amperage in the way below average range; (c) the upper bound of the average range is equal to the overall average current for the diagnostic session plus 25 microamps; (d) the lower bound of the average range is equal to the overall average current for the diagnostic session minus 25 microamps; (e) the upper bound of the above average range is equal to the overall average current for the diagnostic session plus 50 microamps; and (e) the lower bound of the below average range is equal to the overall average current minus 50 microamps. Notwithstanding the foregoing, a current range in the "Prototype Current Ranges" shall be truncated or eliminated to the extent needed to cause all values in the Prototype Current Ranges to be positive. For purposes of the definition of "Prototype Current Ranges" for a diagnostic session, the "overall average current" means an average of currents (after any calibration and/or filtering) for the respective measurement locations during the diagnostic session.

In illustrative implementations, a current for each measurement location is assigned to one of the calculated current ranges. For instance, in some cases: (a) current measurements are taken at 24 different measurement locations on a single patient during a single diagnostic session; (b) 24 currents are calculated, one for each of the 24 measurement locations; and (c) each of the 24 currents is assigned to one of the calculated current ranges. Each current that is assigned to a current range may itself be an average, calibrated and/or filtered current, as described above.

Alternatively, in some cases: (a) only a single current measurement is taken at each measurement location during a diagnostic session; (b) the overall average current is equal to the average of these single current measurement for the respective measurement locations; and (c) the single current measurements for the respective measurement locations are each assigned to a current range. In some cases, calibration and/or filtering are not performed, and the overall

average current is calculated with uncalibrated and/or unfiltered data.

Lookup Table

In some implementations, after currents for the respective measurement locations are each assigned to a current range, a computer
5 employs a look up table to determine one or more medical conditions that are indicated by one or more of these currents. For instance, the computer may determine whether one or more of these currents is or are in a specific state that is listed in the lookup table, and may further determine that this specific state is associated (by the look up table)
10 with one or more specific medical conditions, and may thus conclude that the current readings in the diagnostic session indicate that these one or more specific medical conditions are present. Put differently, the computer may conclude that the specific state (of electrical currents) exists and is a biomarker for the one or more specific medical
15 conditions.

For instance, a computer: (a) may determine that HT current and PC current are in a specific state, in which HT current is below average on the left, the right or both sides of a patient and the PC current is below average on the left, the right or both sides of the
20 patient; (b) may access a lookup table and determine that this specific state is associated (by the lookup table) with coronary artery disease; and (b) may thus conclude that coronary artery disease is indicated by the current readings. Put differently, the computer may conclude that a specific current state (of HT and PC currents) exists and is a
25 biomarker for coronary artery disease.

In some use scenarios, a single current state is associated (by the lookup table) with more than one medical conditions.

Each specific current state may consist of either: (a) a current range for a single current (e.g., SP current is below average
30 on left and right sides); or (b) current ranges for multiple respective currents (e.g., GB current is way below average on left and right sides and LR current is average on left and right sides).

In some implementations, the lookup table is also employed to determine a confidence level or probability for a particular medical
35 condition. For instance, the lookup table may associate a specific current state with both: (a) a medical condition; and (b) a confidence level or probability for that condition. The confidence level or probability may be explicit or implicit. For instance, the lookup table may indicate that a recommendation should be made for further medical

testing, in order to evaluate whether or not a specific medical condition is actually present. We sometimes call this a "rule- out" recommendation.

In some implementations, the lookup table includes all or part of the information set forth in Table 1 below. For instance, the lookup table may include at least part of the information (about medical conditions, electric current states and associations between electrical current state and medical condition) which is set forth in Table 1 below.

Table 1

	Class	Medical Condition	Electrical Current State
1.	B	anemia	(a)SP current is below average on left and right sides; and (b)KI current is average on left and right sides; and (c)BL current is average on left and right sides.
2.	A	anxiety	[(a) HT current is above average on left, right or both sides; and (b) LR current is average on left and right sides] and/or [(a) LU current is average on left, right or both sides; and (b) PC current is average on left, right or both sides; and (c) HT current is average on left, right or both sides; and (d) LR current is average on left and right sides.] and/or [(a) HT current is above average on left and right sides; and (b) SI current is above average on left, right or both sides].
3.	D	back injury	BL current is above average on left, right or both sides.
4.	D	back injury - with nerve damage and no pain	(a)BL current is below average on left, right or both sides; and (b)SP current is below average on left, right or both sides.
5.	D	back injury - with nerve damage and pain	(a)BL current is above average on left, right or both sides; and (b)SP current is below average on left, right or both sides.
6.	D	back injury - with pain	BL current is above average on left, right or both sides.
7.	B	bacterial infection	(a)SP current is way above average on left and right sides; and (b)KI current is average on left and right sides; and (c)BL current is average on left and right sides.
8.	A	bipolar disorder - in depressive state	(a)PC current is below average on left and right sides; and (b)HT current is below average on left and right sides; and (c)LR current is above average on left and right sides.

	Class	Medical Condition	Electrical Current State
9.	A	bipolar disorder - in manic state	(a) LU current is way above average on left and right sides; and (b) PC current is way above average on left and right sides; and (c) HT current is way above average on left and right sides; and (d) LR current is way above average on left and right sides.
10.	G	bladder dysfunction	(a)BL current is above average on left, right or both sides; and/or (b)BL current is below average on left, right or both sides.
11.	B	bladder infection	(a)KI current is way above average on left and right sides; and (b)BL current is way above average on left and right sides; and (c)SP current is way above average on left and right sides.
12.	I	blood pressure medication overdose	(a)PC current is below average on left and right sides; and (b)HT current is below average on left and right sides.
13.	G	chronic fatigue and/or chronic sleep deficit	(a)HT current is below average on left, right or both sides; and (b)PC current is below average on left, right or both sides.
14.	B	chronic obstructive pulmonary disease	(a)LU current is above average on left and right sides; xor (b)LU current is below average on left and right sides.
15.	B	constipation	(a)LI current is below average on left, right or both sides; and (b)SI current is average on left, right or both sides; and (c)TH current is average on left, right or both sides.
16.	M	coronary artery disease	(a)HT current is below average on left, right or both sides; and (b)PC current is below average on left, right or both sides.
17.	J	deficiency in caloric food intake	(a)SI current is way below average on left and right sides; and (b)TH current is way below average on left and right sides; and (c)LI current is way below average on left and right sides; and (d)ST current is way below average on left and right sides; and (e)GB current is way below average on left and right sides.
18.	J	deficiency in protein intake	LR current is below average on left and right sides.

	Class	Medical Condition	Electrical Current State
19.	I	mild (i.e., non- clinical) depression	(a)HT current is above average or below average on left side; and (b)HT current is above average or below average on right side; and (c)PC current is above average or below average on left side; and (d)PC current is above average or below average on right side; and (e)LR current is above average on left and right sides.
20.	A	clinical depression	(a)PC current is below average on left, right or both sides; and (b)HT current is below average on left, right or both sides; and (c)LR current is above average on left, right or both sides; and (d)ST current is average or below average on left, right or both sides.
21.	K	poor glycemic control (if patient has diabetes mellitus)	SP current is below average on left and right sides.
22.	I	digestive disorder	(a) LI current is average or below average on left side; and (b) LI current is average or below average on right side; and (c)ST current is way below average on left and right sides; and (d)GB current is average on left and right sides.
23.	F	duodenal irritation	(a) SI current is above average on left, right or both sides; and (b) [(HT current is average on left and right sides) xor (HT current is below average on left and right sides)]; and (c) [(LR current is average on left and right sides) xor (LR current is below average on left and right sides)]; and (d) LI current is average on left and right sides.
24.	L	dysautonomia	(a)PC current is way below average on left and right sides; and (b)HT current is way below average on left and right sides; and (c)SP current is way below average on left and right sides; and (d)KI current is way below average on left and right sides; and (e)BL current is way below average on left and right sides.

	Class	Medical Condition	Electrical Current State
25.	L	dysphagia	(a) [(PC current is above average on left and right sides) xor (PC current is way above average on left and right sides)]; and (b) GB current is above average on left and right sides.
26.	J	excessive fat intake	(a)LR current is way above average on left and right sides; and (b)GB current is above average or way above average on left side; and (c)GB current is above average or way above average on right side; and (d)ST current is above average or way above average on left side; and (e)ST current is above average or way above average on right side.
27.	I	fatigue	(a)PC current is below average on left, right or both sides; and (b)HT current is below average on left, right or both sides.
28.	I	food-related sinus allergy	(a)LU current is below average on left, right or both sides; and (b)LR current is above average on left, right or both sides.
29.	G	gallbladder disorder	(a)GB current is way below average on left and right sides; and (b)LR current is average on left and right sides.
30.	M	gastroparesis	(a)ST current is way below average on left and right sides; and (b)GB current is average on left and right sides; and (c)SP current is way below average on left, right or both sides; and (d)KI current is way below average on left, right or both sides; and (e)BL current is way below average on left, right or both sides.
31.	G	headaches	(a)PC current is below average on left, right or both sides; and (b)HT current is below average on left, right or both sides; and (c)[(KI current is above average on left, right or both sides) and/or (SP current is above average on left, right or both sides)].
32.	C	hyper-metabolism	(a)SI current is way above average on left and right sides; and (b)TH current is way above average on left and right sides; and (c)LI current is way above average on left and right sides.

	Class	Medical Condition	Electrical Current State
33.	C	hypertension	(a)PC current is above average on left and right sides; and (b)[(HT current is above average on left and right sides) xor (HT current is way above average on left and right sides)].
34.	C	hyperthyroid	(a)TH current is above average on left and right sides; and (b)SI current is average on left and right sides; and (c)LI current is average on left and right sides.
35.	C	hypotension	(a)[(PC current is below average on left and right sides) xor (PC current is way below average on left and right sides)]; and (b)[(HT current is below average on left and right sides) xor (HT current is way below average on left and right sides)].
36.	C	hypothyroid	(a)TH current is below average on left and right sides; and (b)SI current is average on left and right sides; and (c)LI current is average on left and right sides.
37.	K	incontinence (if patent is female)	(BL current is below average on left, right or both sides) and/or (BL current is above average on left, right or both sides).
38.	Q	inflammation	(a)LR current is way above average on left and right sides; and (b)GB current is average on left and right sides; and (c)ST current is average on left and right sides.
39.	F	irritation of stomach lining	ST current is way above average on left, right or both sides.
40.	E	irritation of nerves in both upper back and lower back	(a)BL current is above average on left, right or both sides; and (b)KI current is above average on left, right or both sides.
41.	E	irritation of nerves in lower back	BL current is above average on left and right sides.

	Class	Medical Condition	Electrical Current State
42.	E	irritation of nerves in neck	KI current is above average on left, right or both sides.
43.	M	kidney failure	(a)KI current is below average on left and right sides; and (b)BL current is below average on left and right sides.
44.	I	large intestine disorder (with symptoms other than or in addition to large intestine irritation)	(a)LI current is below average on left, right or both sides; and/or (b)LI current is above average on left, right or both sides.
45.	F	large intestine irritation	(a)LI current is way above average on left, right or both sides; and (b)SI current is average on left and right sides.
46.	D	lower back injury	BL current is above average on left, right or both sides.
47.	D	lower back pain	BL current is above average on left, right or both sides.
48.	Q	lung cancer	LU current is way above average on left, right or both sides.
49.	Q	lung disease (excluding lung cancer)	(a)LU current is above average on left, right or both sides; and/or (b)LU current is below average on left, right or both sides.
50.	K	menstruating (if patient is a woman)	(a)SP current is above average on left and right sides; and (b)BL current is above average on left and right sides; and (c)KI current is above average on left and right sides.
51.	Q	Micro-circulatory disease	PC current is below average on left, right or both sides.
52.	N	Micro-circulatory -orthostatic hypotension	(a)PC current is below average on left and right sides; and (b)HT current is below average on left and right sides; and (c)SP current is below average on left and right sides; and (d)KI current is below average on left and right sides; and (e)BL current is below average on left and right sides.

	Class	Medical Condition	Electrical Current State
53.	N	multiple sclerosis	(a)KI current is below average on left and right sides; and (b)SP current is below average on left and right sides; and (c)BL current is below average on left and right sides.
54.	H	nerve damage in lower back	BL current is below average on left, right or both sides.
55.	H	nerve damage in neck	KI current is below average on left, right or both sides.
56.	H	nerve damage due to fall on tailbone (in female patient)	(a)BL current is below average on left and right sides; and (b)KI current is average on left and right sides; and (c)SP current is average on left and right sides.
57.	H	nerve damage in upper back	KI current is below average on left, right or both sides.
58.	N	benign prostatic hyperplasia	(a)BL current is below average on left, right or both sides; and (b)KI current is average on left, right or both sides; and (c)SP current is average on left, right or both sides.
59.	Q	prostate cancer	(a)BL current is above average on left, right or both sides; and (b)KI current is average on left and right sides; and (c)SP current is average on left and right sides.
60.	P	reflux	(a)GB current is above average on left, right or both sides; and (b)ST current is above average on left, right or both sides.
61.	P	sinus infection	(a)SP current is way above average on left and right sides; (b)KI current is average on left and right sides; and (c)BL current is average on left and right sides; and (c) LU current is way below average on left and right sides.
62.	L	sleep disorder	(a)HT current is below average on left, right or both sides; and (b)PC current is below average on left, right or both sides.
63.	I	impaired stomach motility	(a)ST current is way below average on left and right sides; and (b)GB current is average on left and right sides.

	Class	Medical Condition	Electrical Current State
64.	J	excessive stress	[(a) HT current is above average on left, right or both sides; and (b) PC current is above average on left, right or both sides; and (c) SI current is below average on left, right or both sides] and/or [(a) HT current is average on left, right or both sides; and (b) PC current is average on left, right or both sides; and (c) ((SI current is above average on left, right or both sides) and/or (SI current is way above average on left, right or both sides))].
65.	P	viral infection	(a)SP current is way below average on left and right sides; and (b)KI current is average or way above average on left, right or both sides; and (c)BL current is average or way above average on left, right or both sides.

Table 1 has 65 rows.

Table 1 lists 65 electrical current states, i.e., one electrical current state per row. As used herein, "Prototype Electrical Current State" means an electrical current state that is listed in a row of Table 1. For instance, the Prototype Electrical Current State listed in row 3 of Table 1 is "BL current is below average on left, right or both sides." Also, for instance, the Prototype Electrical Current State listed in row 4 of Table 1 is "(a) BL current is below average on left, right or both sides; and (b) SP current is below average on left, right or both sides."

Each current range listed in Table 1 is a Prototype Current Range. Specifically, each time that a current range "way above average", "above average", "average", "below average" or "way below average" is listed in Table 1, that current range is a Prototype Current Range. For instance, in row 3 of Table 1, "above average" is a Prototype Current Range. Also, for instance, in row 28 of Table 1, "below average" and "above average" are each a Prototype Current Range.

Table 1 lists 65 medical conditions; i.e., one medical condition per row. As used herein, "Prototype Medical Condition" means a medical condition listed in a row of Table 1. For instance, the Prototype Medical Conditions listed in rows 1, 2 and 65 of Table 1 are

anemia, anxiety and viral infection, respectively.

In each row in Table 1, the electrical current state listed in that row indicates that the patient has the medical condition listed in that row. Put differently, in each row in Table 1, the electrical current state listed in that row is a biomarker for the medical condition listed in that row. Likewise, in each row in Table 1, the electrical current state listed in that row is a factor that, in a differential diagnosis, points toward (or weighs in favor of) concluding that the patient has at least the medical condition listed in that row.

Table 1 associates Prototype Medical Conditions with respective Prototype Electrical Current States. Specifically, Table 1 associates the Prototype Medical Condition listed in each row of Table 1 with the Prototype Electrical Current State listed in that row. As a non-limiting example, Table 1 associates the Prototype Medical Condition listed in row 48 of Table 1 (i.e., lung cancer) with the Prototype Electrical Current State listed in row 48 of Table 1 (i.e., "LU current is way above average on left, right or both sides".)

As used herein, when the first letter of the verb "Associate" is capitalized, then to "Associate" means to associate, by a lookup table, a Prototype Medical Condition listed in a row of Table 1 with the Prototype Electrical Current State listed in that row of Table 1. The term "Associate" does not require accessing Table 1 itself; instead "Associate" requires a lookup table to make the same association as is made in a row of Table 1. For instance, if a lookup table were to associate lung cancer with the Prototype Electrical Current State "LU current is way above average on left, right or both sides", then the lookup table would be Associating lung cancer with that Prototype Electrical Current State. (This is because row 48 of Table 1 makes that association). The definition of "Associate" in this paragraph does not create any implication regarding the meaning of the word "associate" when the first letter of the word is not capitalized.

In each row in Table 1, if the electrical current state for that row does not explicitly mention a specific current, then that specific current may be in any Prototype Current Range. For instance: (a) in row 1 of Table 1, only SP current, KI current and BL current are explicitly mentioned; and (b) in the electrical current state listed in row 1, other currents (e.g., LR, GB, ST, LU, PC, HT, SI, TH and LI currents) may be in any Prototype Current Range.

Each current that is on a particular side of a patient and

that is listed in Table 1 may have a value derived from: (a) a single measurement at a particular measurement location (after any calibration) or (b) multiple measurements at the particular measurement location (after any calibration and filtering). If a current listed in Table 1 has a value that is derived from multiple measurements at a particular measurement location, then that value is an average of the multiple measurements (after any calibration and filtering).

In some use scenarios, each current listed in Table 1 is a Prototype Current that is measured when a probe electrode is touching a Prototype Measurement Location. Likewise, in some use scenarios: (a) each current that is on a specific side of a patient and that is listed in Table 1 is an electric current between a probe electrode and a ground electrode, which current is measured while: (a) the ground electrode is touching skin of a hand of a forearm of a patient; and (b) the probe electrode is touching skin of another limb of the patient at a Prototype Measurement Location on that specific side of the patient.

This invention may be employed to accurately detect and diagnose medical conditions. For instance, in some implementations of this invention: (a) the Prototype Currents listed in Table 1 are measured while the probe electrode is placed at the Prototype Measurement Locations; (b) the measured currents are assigned to Prototype Current Ranges; and (c) accurate diagnoses of medical conditions are made based on the respective associations (between electrical current states and medical conditions) that are set forth in Table 1.

In Table 1, each medical condition is assigned a class. Specifically, each medical condition listed in a row of Table 1 is classified as being in a particular class, which particular class is listed in that row. For instance, in row 1 of Table 1, the medical condition of anemia is classified as being in Class B.

As used herein: (a) "Class A Condition" means a medical condition that is, in Table 1, classified as being in Class A; (b) "Class B Condition" means a medical condition that is, in Table 1, classified as being in Class B; (c) "Class C Condition" means a medical condition that is, in Table 1, classified as being in Class C; (d) "Class D Condition" means a medical condition that is, in Table 1, classified as being in Class D; (e) "Class E Condition" means a medical condition that is, in Table 1, classified as being in Class E; (f) "Class F Condition" means a medical condition that is, in Table 1, classified as being in Class F; (g) "Class G Condition" means a medical condition that is, in

Table 1, classified as being in Class G; (h) "Class H Condition" means a medical condition that is, in Table 1, classified as being in Class H; (i) "Class I Condition" means a medical condition that is, in Table 1, classified as being in Class I; (j) "Class J Condition" means a medical condition that is, in Table 1, classified as being in Class J; (k) "Class K Condition" means a medical condition that is, in Table 1, classified as being in Class K; (l) "Class L Condition" means a medical condition that is, in Table 1, classified as being in Class L; (m) "Class M Condition" means a medical condition that is, in Table 1, classified as being in Class M; (n) "Class N Condition" means a medical condition that is, in Table 1, classified as being in Class N; (p) "Class P Condition" means a medical condition that is, in Table 1, classified as being in Class P; and (q) "Class Q Condition" means a medical condition that is, in Table 1, classified as being in Class Q. The medical conditions listed in this paragraph are each an example of a Prototype Medical Condition.

As noted above, the diagnostic system may determine whether or not a patient has a viral infection and whether or not a patient has a bacterial infection, based on electrical current measurements that take only a few minutes. This ability to quickly and accurately detect and differentiate between viral and bacterial infections enables the diagnostic system to be used as a mass-scale, rapid screening tool in a viral or bacterial epidemic.

For instance, the medical conditions listed in rows 7 and 65 of Table 1 are bacterial infection and viral infection, respectively. Table 1 associates bacterial infection with the electric current state listed in row 7 of Table 1 and associates viral infection with the electric current state listed in row 65 of Table 1. For example, if the electrical current state listed in row 65 of Table 1 is detected, then the diagnostic system may output a diagnosis that the patient has a viral infection. Likewise, if the electrical current state listed in row 7 of Table 1 is detected, then the diagnostic system may output a diagnosis that the patient has a bacterial infection.

Machine Learning

In some implementations of this invention, a computer employs a trained machine learning model instead of a lookup table, in order to predict a medical condition based on measurements of cross-body electrical currents.

In some implementations, the input to the machine learning

model is data representing measurements of cross-body currents at multiple different measurement locations for a single patient during a single diagnostic session. For instance, the input to the machine learning model may comprise measurements of electrical currents, where: (a) the currents flow between a probe electrode and a ground electrode; and (b) the measurements are taken during a single diagnostic session while the patient holds the ground electrode and while the probe electrode is pressed against the patient's skin at each of multiple different locations on limbs of the patient, one location at a time.

In some cases, the data is calibrated (e.g., to adjust for the effect, if any, of pressure exerted against an electrode) and filtered (e.g., to remove outliers) before being fed as input into the machine learning model. In some cases: (a) multiple current measurements are taken at each measurement location; (b) the multiple measurements for each given location are averaged and the resulting average current for that given location is fed as an input into the machine learning model. In some cases: (a) the currents for the respective measurement locations are assigned into current ranges; and (b) the current ranges for the respective measurement locations are fed as inputs into the machine learning model. In some cases, one or more other features are extracted from the current measurements (and/or from contextual information), and are also fed as input into the machine learning algorithm.

In some implementations, the machine learning model that is used to predict medical conditions is a supervised learning algorithm, such as a decision tree algorithm, random forests algorithm, ANN (artificial neural network), CNN (convolutional neural network), RNN (recurrent neural network), RNN with LSTM (long short term memory), RNN with Gated Recurrent Unit, MLP (multi-layered perceptron), or SVM (support vector machine) algorithm or a classifier such as a KNN (k-nearest neighbors) or naive Bayes algorithm. The supervised learning model may be trained on a training dataset that has been labeled by a health care worker or other human expert. The labels may be medical conditions. The data that is labeled may comprise electrical current measurements or data or features derived therefrom. In some cases: (a) there are practical difficulties in obtaining a sufficiently large dataset for training; and (b) a generative model (e.g., a variable autoencoder or generative adversarial network) is employed to generate a synthetic database. This synthetic database may be added to a database

derived from actual measurements, in order to form a large training database for supervised learning.

In some other implementations of this invention, the machine learning model that is used to predict medical conditions is a reinforcement learning algorithm (such as a Monte Carlo, Q-learning, state-action-reward-state-action, or deep Q network algorithm). Alternatively, the machine learning model that is used to predict medical conditions is an unsupervised machine learning algorithm, such as an AE (auto-encoder), SAE (stacked auto-encoder) VAE (variational auto-encoder), DBN (deep belief network), GAN (generative adversarial network), conditional GAN, or infoGAN algorithm. Or, for instance, the machine learning model may comprise a restricted Boltzmann machine.

In some implementations, the machine learning model outputs both: (a) one or more predicted medical conditions; and (b) a confidence level or probability for each of the one or more predicted medical conditions. Again, the confidence level or probability may be explicitly stated or may be implicit. For instance, the machine learning model may output a list of medical conditions, ranked from most probable to less probable. Or, for instance, the machine learning algorithm may output a "rule-out" recommendation - that is, a recommendation that further medical tests be performed to evaluate whether or not a specific medical condition is actually present.

In some implementations: (a) the machine learning model is a supervised learning algorithm; (b) after the model is initially trained, additional data is gathered based on ongoing experiences with patients; and (c) this additional data is labeled and used for additional training of the machine learning model.

User Interface

In some implementations, one or more computers control input/output (I/O) devices in such a way as to present a GUI (graphical user interface) or audiovisual UI (user interface) to a patient, health care worker or other user. For instance, a touch screen or other electronic display screen (e.g., 133, 451) may render a GUI. The patient, health care worker or other user may interact with the GUI by inputting instructions or data via one or more I/O devices such as a touch screen, keyboard 134, or mouse 135. In some implementations, the I/O devices present an audiovisual UI, including audio information outputted by speaker 132. In this audiovisual UI, audio input by the user may be detected by microphone 131 or by a microphone onboard smartphone 450.

The GUI or UI may present (to a patient, health care worker or other user) information about, among other things: (a) electrical current measurements taken during a diagnostic session; (b) current ranges assigned to different currents; (c) a diagnosis or tentative diagnosis that specifies one or more medical conditions that are indicated by the electrical current measurements taken during the diagnostic session; (d) a confidence level or probability associated with each diagnosis or tentative diagnosis; (e) one or more recommendations for action to be taken (e.g., a recommendation to check with a physician for further testing or for confirmation or treatment of a medical condition); (f) additional information about the diagnostic process and the current measurements; (g) results of previous diagnostic sessions; and (h) a comparison of a current diagnosis (or diagnoses) with a past diagnosis (or diagnoses).

The GUI or UI may include a chat box. The chat box may enable a patient to provide additional information about symptoms and to ask questions. In some cases, the chatbox will enable a patient to select from a list of symptoms, and also enable the patient to input information about symptoms that are not listed. The chat box may also enable a health care worker to ask additional questions and to receive answers from the patient.

One or more computers may employ a chatbot in a UI, in order to gather input from and provide information to a patient, health care worker or other user. In some cases, at least some of the information that is provided to a patient, health care worker or other user is sent via one or more emails or other social media messages. The information that is provided by chatbot, email or other social media message may comprise any or all of the information described above in this "User Interface" section.

In some cases, an audiovisual UI guides a user (e.g., patient or health care worker) to take the electrical current measurements under conditions that are suitable for accurate readings. Put differently, the audiovisual UI may provide real-time feedback regarding whether the electrodes are properly positioned and pressed firmly enough against the skin.

When an electrode is pressed against a patient's skin, the measured electrical current may increase as the pressure exerted against the skin increases, until the measured electrical current reaches a plateau. In some cases: (a) the current sensor detects when the electric

current is increasing and when the current plateaus; (b) the only measurements of electric current that are used for diagnostic purposes occur after the measured current has increased and reached a plateau, and (c) measurements of electric current that are taken before the current reaches a plateau are disregarded for diagnostic purposes. Alternatively or in addition, in some cases: (a) one or more pressure sensors measure pressure exerted against an electrode; (b) the only measurements of electric current that are used for diagnostic purposes occur when the pressure exerted on the electrode exceeds a threshold value; and (c) measurements of electric current that are taken when the pressure exerted on the electrode is less than or equal to the threshold are disregarded for diagnostic purposes. In some cases, an electrode has multiple pads, and electric current measurements are disregarded for diagnostic purposes unless the pressure exerted against a threshold number of the pads exceeds a threshold pressure. In some cases, pressure is measured for both the ground electrode and probe electrode, and electric current measurements are disregarded for diagnostic purposes unless pressure exerted against each electrode exceeds the threshold pressure for that electrode. In some cases, the same pressure threshold is used for both the ground and probe electrodes and for all of the pads of a ground electrode. Alternatively, different pressure thresholds may be employed for different electrodes and/or for different pads of an electrode.

The audiovisual UI may emit a sound (e.g., a beep or tone) when the probe and ground electrodes are held correctly. The UI may include a sonic guide that changes pitch or tone depending on the amount of pressure applied to electrode(s) or depending on the amount of current being detected. The UI may also include a visual indicator that shows whether each electrode is in proper contact with the patient's skin. For instance, the graphic display may highlight which electrode is not properly contacting the patient's skin, by changing the color or shape of an electrode icon on the screen.

Thus, the UI may enable self-calibrated measurements of cross-body electrical currents on patients of varying measurement location physiologies (e.g., sizes, skin thickness, exact probe placement, variations in galvanic skin response and transient surface currents effects) and may be used to rapidly screen for optimal measurement protocols. In some implementations, the measurement protocol includes both: (a) real-time determination of quality of signal; and

(b) real-time feedback to a user via the audiovisual UI.

Customization

In some cases, the machine learning algorithm is trained on a dataset for a general population.

5 In other cases, the machine learning algorithm is trained to predict medical conditions in a way that is customized for one or more features of a patient, such as the patient's age, sex, race, weight, habits (e.g., smoker vs non-smoker), personal medical history and/or family medical history. For instance, the training dataset for the machine learning algorithm may be labeled with not only medical conditions but also with one or more these features (e.g., patient's age, sex, race, weight, habits, personal medical history and/or family medical history).

15 Likewise, if a lookup table is employed instead of a machine learning algorithm, then multiple lookup tables may be used, each customized for a different combination of these features. As a non-limiting example, there may be a first lookup table for males over age 59, a second lookup table for women over age 59, a third lookup table for males age 31-59, and so on.

20 In some implementations of this invention, a machine learning model is personalized for a particular patient. For instance, a machine learning algorithm may be initially trained on data for a general population or for a subset of a general population. Then the machine learning algorithm may be further trained for a particular patient, based on data gathered in the course of performing diagnoses of the particular patient. For instance, if the machine learning algorithm predicts medical condition A for a patient but the patient actually has medical condition B, then this information may be used as part of an additional training dataset to train the machine learning algorithm to make personalized predictions for the patient.

25 Likewise, if a lookup table is employed instead of a machine learning algorithm, then the lookup table may be personalized, based on data gathered in the course of making diagnoses of the particular patient.

Adaptive Prediction

35 In some cases, the electrical current measurements for a patient are supplemented with information about contextual features. For instance, the contextual information may include sensor readings that are taken by one or more sensors which are worn by, or located near to,

the patient. These other sensors may measure one or more physiological states of the patient (e.g., heart rate, respiration rate, body temperature) and/or one or more states of the patient's environment (e.g., temperature, humidity, ambient light). These other sensors may wirelessly transmit their readings to a receiver in the diagnostic system. In some cases, the contextual information also includes text or audio input from a patient or health care worker regarding the patient's state (e.g., happy, worried) and/or the patient's environment (e.g., at work).

In some cases, the machine learning algorithm is trained to adapt its prediction in real time based on data about the patient's context. For instance, the training dataset for the machine learning algorithm may be labeled with not only medical conditions but also with one or more contextual features (such as one or more physiological states, mental states, and environmental features). Likewise, if a lookup table is employed, different versions of the lookup table may be employed, depending on the patient's context.

After a machine learning model is initially trained, it may adaptively learn based on the patient's context when electric current measurements are taken. Data regarding both the electrical currents and the context may be gathered while making diagnoses and may later be employed as an additional training dataset, in order to further train the model to predict medical conditions in a manner that depends in part on context.

Machine Learning Example

The following 23 paragraphs describe an example (the "ML Example") of a diagnostic system that employs a trained machine learning model. The ML Example is a non-limiting example of this invention.

In this ML Example, a diagnostic system captures, organizes and analyzes measurements of electrical currents. The system employs machine learning and a database (knowledge library). The system may be used by less experienced practitioners to quickly and accurately diagnose their patients.

In this ML Example: (a) electrical current (or conductivity of the skin) is measured at each meridian point; and (b) excessive and deficient energies are plotted on a chart and identified. Treatment may consist of stimulating specific acupuncture points to either "tonify" a deficient meridian, or "sedate" an excessive meridian. For example, stimulation treatment may be conducted using a preferred range of about

100 microamps to about 200 microamps for humans and a range of about 100 microamps to about 500 microamps for other animals (e.g., mammals).

In this ML Example, patients have different electrical conductivity potentials. Thus, in this ML Example, current measurements are not absolute, but rather may be taken relative to all other measurements on the same patient. Thus, deviation from an average measurement may be more important than the actual measurement itself. Deviations (which may be used for diagnosis) may be determined by analyzing measurements within a broader context (e.g., plotting the current measurements on a chart and looking for outliers from the mean). For instance, an analysis may be designed to encompass the majority of measurements, in an area we sometimes call a "physiological corridor." Measurements outside the corridor may be deemed abnormal, and treatment applied to restore balance to abnormal meridians.

In this ML example, screening may be employed to identify the possible presence of an as-yet-undiagnosed disease in an individual patient (e.g., without signs or symptoms). This may include individuals with pre-symptomatic or unrecognized symptomatic disease.

In this ML Example, electrical measurements along acupuncture meridian lines may be used to examine and identify an individual's specific areas of weakness and strength in order determine a condition, disease or illness. The electrical conductance of the primary meridian lines may be measured at various points on the patient's wrists and ankles. Both excessive and deficient electrical conductance levels outside the patient's normal range may be correlated to classify the condition of the patient.

In this ML Example, a differential diagnostic process may distinguish a particular condition from others that present similar symptoms. A differential diagnosis may include the following steps: (a) gather information about the patient to be diagnosed and create a symptoms list; (b) list possible causes (candidate conditions) for the symptoms; (c) prioritize the list by placing the most urgently dangerous condition at the top of the list; (d) work down the list to rule out possible causes; and (e) remove diagnoses from the list by observing and applying tests that produce different results.

In this ML Example, meridian point assessment of the patient's condition may be used to assemble and support possible candidate conditions and also potentially rule out other possible causes from consideration.

In this ML Example, the diagnostic system may be applied to assess the mental health status of a patient.

In this ML Example, the mental health or psychiatric condition of the patient's mind may have adverse effects on the patient's body. For example, anxiety or depression (rather than an infection or physical abnormality in the digestive tract) may be the root cause of dyspepsia. The conductivity measurements may also provide data regarding psychological aspects of an individual, not just the physical.

In this ML Example, the diagnostic system may be a decision/support system that: (a) links observations with a database of knowledge; and (b) helps to analyze the current state of a patient and to reach a diagnostic conclusion.

Figure 12 is a flowchart for a diagnostic method employed in the ML Example. The method shown in Figure 12 includes at least the following steps: capture 1210, machine learning 1220, and prediction 1230.

In the ML Example, the capture step may comprise: (a) taking patient observations in the form of recorded meridian points; and (b) producing a database of associated labeled outcomes for a selected diagnosis (e.g., where the outcome labels are Positive, Negative and Rule Out). The information acquired during capture may be used to create the knowledge library database. Each patient record may consist of 24 meridian points, 12 from the left and right hands and 12 from the left and right feet.

In the ML Example, the machine learning step may include generating a set of random forests through supervised training, in such a way that: (a) one random forest is created for each potential diagnostic entity; and (b) the collection of random forests constitutes the knowledge library database.

In the ML Example, each random forest may be employed as an ensemble of knowledge for a given diagnostic conclusion. The conclusion may be either positive, negative or needs further testing to rule out. Each trained ensemble may represent a single hypothesis.

In the ML Example, any type of machine learning model may be employed, including: (a) an artificial neural network; (b) decision tree; (c) random forests; or (d) support vector machine.

In the ML Example, the machine learning model is trained by supervised learning. For example, the experience (and/or separate diagnosis) data entered by a doctor may be organized into the content

of the models. Thus, a doctor may supervise the learning of the machine learning model.

In the version of the ML Example that is shown in Figure 12, a doctor may enter a set of outcomes (positive, negative and/or rule out) for a specific set of patient meridian points as it relates to a specific diagnosis. Each experience is recorded in the database. In the supervised learning, the patient meridian points may be features and the outcomes may be labels. During supervised learning, a decision tree may split data into smaller data groups based on the features of the data until a small enough set of data identifies to one label. After the decision tree is trained, it may take as an input a feature set (meridian points) and may output one label (positive, negative or rule out).

In the ML Example, rather than rely on only one decision tree, a random forest is created that consists of a number of competing decision trees, where each tree is trained in a slightly different way. Then each tree in the forest may determine an answer on its own and the forest may be surveyed for the best agreed upon answer.

In the ML Example, the supervised learning mode may output an accurate predicted label (outcome). Meridian points recorded from a new patient may be entered into the diagnostic system and a patient diagnosis may be displayed on a practitioner's monitor.

In the ML Example, the machine learning algorithm may create a random forest for each diagnostic candidate and each forest may consist of hundreds of trees. As a non-limiting example, if there are a hundred diagnostic candidates, then there may be tens of thousands of decision trees that are making decisions (e.g., correlating meridian point data to possible outcomes).

In the ML Example, an inference engine may query each random forest for its outcome decision. The inference engine may assess the reliability of each decision, rank them and present them. The inference engine may also present supporting justification for the final set of outcomes. The inference engine may also record feedback from the practitioner to determine the validity of the final outcome. The information may be recorded and ultimately fed back into the machine learning algorithm to enhance system performance and accuracy.

In the ML Example, data may be stored in a relational database. For instance, data may be stored in the relational database shown in Figure 13. This relational database may include data regarding,

among other things, patients 1300, conditions 1310, positive outcomes 1320, negative outcomes 1330, and rule-outs 1340.

In the ML Example, each meridian record may be analyzed against the various diagnostic candidates and an outcome of positive, negative or rule out may be determined. A graphical user interface may display diagnostic results and may also display a justification for the diagnosis.

The ML Example described in the preceding 23 paragraphs is a non-limiting example of this invention. This invention may be implemented in many other ways.

Practical Applications

This invention has many practical applications. For instance, in some cases, the diagnostic system may be employed to diagnose or tentatively diagnose a medical condition. The diagnostic system may also be employed to screen for medical conditions, and to determine when further testing is needed in order to determine whether a particular medical condition is present. In some implementations, the diagnostic system is employed to quickly distinguish between a viral infection and a bacterial infection. Also, in some cases, the diagnostic system may be employed to rapidly screen for: (a) optimal dosing levels for medicine; (b) effects of (physical or psycho-) therapy or exercise; (c) effects of diet or other therapeutic or preventative or wellness-focused supplements; and (d) effects of pharmaceuticals and/or other therapeutic and diagnostic interventions.

Computers

In illustrative implementations of this invention, one or more computers (e.g., servers, network hosts, client computers, integrated circuits, microcontrollers, controllers, microprocessors, field-programmable-gate arrays, personal computers, digital computers, driver circuits, or analog computers) are programmed or specially adapted to perform one or more of the following tasks: (1) to control the operation of, or interface with, hardware components of a current sensor, power source, or signal generator; (2) to calibrate, filter and/or average current measurements; (3) to calculate current ranges and to assign currents to current ranges; (4) to determine an electrical current state that consists of a current range for a specific current or of current ranges for respective currents; (5) to access a lookup table to determine that one or more medical conditions are indicated by the electrical current state; (6) to train a machine learning model;

(7) to employ a trained machine learning model to predict, based on measured cross-body electrical currents, that one or more medical conditions are present; (8) to output a diagnosis or tentative diagnosis; (9) to output a rule-out recommendation to perform further medical testing to evaluate whether a medical condition is actually present; (10) to output a probability or confidence level for each medical condition that is diagnosed or tentatively diagnosed; (11) to control input/output devices in such as to present a UI that provides real-time feedback regarding whether electrodes are being used properly and that provides other information including current readings and diagnoses; (12) to receive data from, control, or interface with one or more sensors, including one or more pressure sensors; (13) to perform any other calculation, computation, program, algorithm, or computer function described or implied herein; (14) to receive signals indicative of human input; (15) to output signals for controlling transducers for outputting information in human perceivable format; (16) to process data, to perform computations, and to execute any algorithm or software; and (17) to control the read or write of data to and from memory devices (tasks 1-17 of this sentence being referred to herein as the "Computer Tasks"). The one or more computers (e.g. 105, 121 or a computer in smartphone 450) may, in some cases, communicate with each other or with other devices: (a) wirelessly, (b) by wired connection, (c) by fiber-optic link, or (d) by a combination of wired, wireless or fiber optic links.

In exemplary implementations, one or more computers are programmed to perform any and all calculations, computations, programs, algorithms, computer functions and computer tasks described or implied herein. For example, in some cases:

(a) a machine-accessible medium has instructions encoded thereon that specify steps in a software program; and (b) the computer accesses the instructions encoded on the machine-accessible medium, in order to determine steps to execute in the program. In exemplary implementations, the machine-accessible medium may comprise a tangible non-transitory medium. In some cases, the machine-accessible medium comprises (a) a memory unit or (b) an auxiliary memory storage device. For example, in some cases, a control unit in a computer fetches the instructions from memory.

In illustrative implementations, one or more computers execute programs according to instructions encoded in one or more tangible, non-transitory computer-readable media. For example, in some

cases, these instructions comprise instructions for a computer to perform any calculation, computation, program, algorithm, or computer function described or implied herein. For instance, in some cases, instructions encoded in a tangible, non-transitory, computer-accessible medium comprise instructions for a computer to perform the Computer Tasks.

Computer Readable Media

In some implementations, this invention comprises one or more computers that are programmed to perform one or more of the Computer Tasks.

In some implementations, this invention comprises one or more tangible, machine readable media, with instructions encoded thereon for one or more computers to perform one or more of the Computer Tasks. In some implementations, these one or more media are not transitory waves and are not transitory signals.

In some implementations, this invention comprises participating in a download of software, where the software comprises instructions for one or more computers to perform one or more of the Computer Tasks. For instance, the participating may comprise (a) a computer providing the software during the download, or (b) a computer receiving the software during the download.

Network Communication

In illustrative implementations of this invention, one or more devices (e.g., 105, 450) are configured for wireless or wired communication with other devices in a network.

For example, in some cases, one or more of these devices include a wireless module for wireless communication with other devices in a network. Each wireless module may include (a) one or more antennas, (b) one or more wireless transceivers, transmitters or receivers, and (c) signal processing circuitry. Each wireless module may receive and transmit data in accordance with one or more wireless standards.

In some cases, one or more of the following hardware components are used for network communication: a computer bus, a computer port, network connection, network interface device, host adapter, wireless module, wireless card, signal processor, modem, router, cables and wiring.

In some cases, one or more computers (e.g., 105 or a computer in smartphone 450) are programmed for communication over a network. For example, in some cases, one or more computers are programmed for network

communication: (a) in accordance with the Internet Protocol Suite, or
(b) in accordance with any other industry standard for communication,
including any USB standard, ethernet standard (e.g., IEEE 802.3), token
ring standard (e.g., IEEE 802.5), or wireless communication standard,
5 including IEEE 802.11 (Wi-Fi®), IEEE 802.15 (Bluetooth®/Zigbee®), IEEE
802.16, IEEE 802.20, GSM (global system for mobile communications), UMTS
(universal mobile telecommunication system), CDMA (code division
multiple access, including IS- 95, IS-2000, and WCDMA), LTE (long term
evolution), or 5G (e.g., ITU IMT-2020).

10 **Definitions**

The terms "a" and "an", when modifying a noun, do not imply
that only one of the noun exists. For example, a statement that "an
apple is hanging from a branch": (i) does not imply that only one apple
is hanging from the branch; (ii) is true if one apple is hanging from
15 the branch; and (iii) is true if multiple apples are hanging from the
branch.

"Associate" is defined above.

To compute "based on" specified data means to perform a
computation that takes the specified data as an input.

20 To say that a current flows "between" A and B does not create
any implication regarding direction of flow (i.e., from A to B, or from
B to A).

"BL current" is defined above.

25 Non-limiting examples of a "camera" include: (a) a digital
camera; (b) a digital grayscale camera; (c) a digital color camera; and
(d) a video camera.

The term "comprise" (and grammatical variations thereof)
shall be construed as if followed by "without limitation". If A comprises
B, then A includes B and may include other things.

30 A digital computer is a non-limiting example of a "computer".
An analog computer is a non-limiting example of a "computer". A computer
that performs both analog and digital computations is a non-limiting
example of a "computer". However, a human is not a "computer", as that
term is used herein.

35 "Computer Tasks" is defined above.

"Defined Term" means a term or phrase that is set forth in
quotation marks in this Definitions section.

For an event to occur "during" a time period, it is not
necessary that the event occur throughout the entire time period. For

example, an event that occurs during only a portion of a given time period occurs "during" the given time period.

The term "e.g." means for example.

The fact that an "example" or multiple examples of something
5 are given does not imply that they are the only instances of that thing.
An example (or a group of examples) is merely a non-exhaustive and non-limiting illustration.

Chronic fatigue is a non-limiting example of "fatigue".

The terms "Class A Condition" through "Class N Condition" are
10 defined above. Also, "Class P Condition" and "Class Q Condition" are defined above.

"Diagnostic session" means a period of time.

Unless the context clearly indicates otherwise: (1) a phrase that includes "a first" thing and "a second" thing does not imply an
15 order of the two things (or that there are only two of the things); and
(2) such a phrase is simply a way of identifying the two things, so that they each may be referred to later with specificity (e.g., by referring to "the first" thing and "the second" thing later). For example, if a device has a first socket and a second socket, then, unless the context
20 clearly indicates otherwise, the device may have two or more sockets, and the first socket may occur in any spatial order relative to the second socket. A phrase that includes a "third" thing, a "fourth" thing and so on shall be construed in like manner.

As used herein, "food-related sinus allergy" means a sinus
25 allergy that is caused (or exacerbated) at least in part by one or substances (e.g., allergens) in ingested food.

"Forearm" is defined above.

"For instance" means for example.

To say a "given" X is simply a way of identifying the X, such
30 that the X may be referred to later with specificity. To say a "given" X does not create any implication regarding X. For example, to say a "given" X does not create any implication that X is a gift, assumption, or known fact.

A migraine is a non-limiting example of a "headache".

35 "Herein" means in this document, including text, specification, claims, abstract, and drawings.

As used herein: (1) "implementation" means an implementation of this invention; (2) "embodiment" means an embodiment of this invention; (3) "case" means an implementation of this invention; and

(4) "use scenario" means a use scenario of this invention.

To say that a current is "in" a patient means that the current flows through at least a portion of the body of the patient.

The term "include" (and grammatical variations thereof) shall
5 be construed as if followed by "without limitation".

"GB current" is defined above.

"HT current" is defined above.

"KI current" is defined above.

"Left side" is defined above.

10 "Leg" is defined above.

"LI current" is defined above.

As used herein, "lower back" means the portion of the back that is inferior to the transpyloric plane.

"LR current" is defined above.

15 "LU current" is defined above.

A physiological condition is a non-limiting example of a "medical condition", as that term is used herein.

"Meridian" means acupuncture meridian.

The term "mobile computing device" or "MCD" means a device
20 that includes a computer, a camera, a display screen and a wireless transceiver. Non-limiting examples of an MCD include a smartphone, cell phone, mobile phone, tablet computer, laptop computer and notebook computer.

Unless the context clearly indicates otherwise, "or" means
25 and/or. For example, A or B is true if A is true, or B is true, or both A and B are true. Also, for example, a calculation of A or B means a calculation of A, or a calculation of B, or a calculation of A and B.

"PC current" is defined above.

30 As used herein, "poor glycemic control" means: (a) blood glucose levels that are persistently greater than 200 mg/dl; together with (b) glycated hemoglobin levels in the blood that are persistently greater than 9%.

"Prototype Current" is defined above.

"Prototype Current Ranges" is defined above.

35 "Prototype Electrical Current State" is defined above.

"Prototype Measurement Locations" is defined above.

"Prototype Medical Condition" is defined above.

"Right side" is defined above.

As used herein, the term "set" does not include a group with

no elements.

"SI current" is defined above.

An electrode touching or being pressed against a conductive gel (or other conductive material) that is on a region of skin of a patient is a non-limiting example of the electrode "touching" or being "pressed against" the region of skin, as those terms are used herein.

Unless the context clearly indicates otherwise, "some" means one or more.

"SP current" is defined above.

"ST current" is defined above.

As used herein, a "subset" of a set consists of less than all of the elements of the set.

The term "such as" means for example.

"TH current" is defined above.

To say that a current flows "through" a body means that the current flows through at least a portion of the body.

To say that a machine-readable medium is "transitory" means that the medium is a transitory signal, such as an electromagnetic wave.

As used herein, "upper back" means the portion of the back that is superior to the transpyloric plane.

In the clause "HT current is above average or below average on left side", the phrase "on left side" modifies both "above average" and "below average". Likewise, other clauses with the same grammatical structure shall be construed in the same way. For instance, in the clause "LI current is average or below average on right side", the phrase "on right side" modifies both "average" and "below average".

"A xor B" means A or B but not A and B. Put differently, the term "xor" signifies an exclusive or.

Except to the extent that the context clearly requires otherwise, if steps in a method are described herein, then the method includes variations in which: (1) steps in the method occur in any order or sequence, including any order or sequence different than that described herein; (2) any step or steps in the method occur more than once; (3) any two steps occur the same number of times or a different number of times during the method; (4) one or more steps in the method are done in parallel or serially; (5) any step in the method is performed iteratively; (6) a given step in the method is applied to the same thing each time that the given step occurs or is applied to a different thing each time that the given step occurs; (7) one or more steps occur

simultaneously; or (8) the method includes other steps, in addition to the steps described herein.

Headings are included herein merely to facilitate a reader's navigation of this document. A heading for a section does not affect the meaning or scope of that section.

This Definitions section shall, in all cases, control over and override any other definition of the Defined Terms. The Applicant or Applicants are acting as his, her, its or their own lexicographer with respect to the Defined Terms. For example, the definitions of Defined Terms set forth in this Definitions section override common usage and any external dictionary. If a given term is explicitly or implicitly defined in this document, then that definition shall be controlling, and shall override any definition of the given term arising from any source (e.g., a dictionary or common usage) that is external to this document. If this document provides clarification regarding the meaning of a particular term, then that clarification shall, to the extent applicable, override any definition of the given term arising from any source (e.g., a dictionary or common usage) that is external to this document. Unless the context clearly indicates otherwise, any definition or clarification herein of a term or phrase applies to any grammatical variation of the term or phrase, taking into account the difference in grammatical form. For example, the grammatical variations include noun, verb, participle, adjective, and possessive forms, and different declensions, and different tenses.

Table 2, below, provides exemplary data measurements obtained from 133 people, and associated diagnoses, rule-outs, and symptoms, if any. The measurements were taken as herein described at the respective lung, pericardium, heart, small intestine, triple heater, large intestine, spleen, liver, kidney, bladder, gall bladder, and stomach acupuncture meridian locations. The measurements are provided in units of microamps (μA).

Table 2

=====

Patient 1 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	74	66	78	62	144	154	76	54	66	76	46	92

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	72	46	50	170	186	176	48	58	46	68	36	108

Diagnosis:

Group #1: nerve damage
 Group #1: nerve damage - upper and lower back
 Group #1: microcirculatory problem
 Group #1: microcirculatory-orthostatic hypotension
 Group #2: low protein intake
 Group #2: increased metabolism
 Group #2: weight loss
 Group #3: stress

Rule Outs:

Group #1: coronary artery disease

Symptoms:

Group #1: chronic fatigue

=====

Patient 2

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	112	114	102	26	64	78	184	82	116	132	86	128

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	152	126	118	120	126	96	116	98	134	132	72	122

Diagnosis:

Group #1: lower and upper back irritation
 Group #2: low protein intake

Symptoms:

Group #1: lower back pain

=====

Patient 3

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	82	62	66	70	110	64	86	42	38	64	46	72

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	52	62	50	76	78	66	82	80	46	68	42	66

Diagnosis:

Group #1: headaches
 Group #1: nerve damage - neck

Rule Outs:

Group #2: hyperthyroid

=====

Patient 4

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
-------	----	----	----	----	----	----	----	----	----	----	----	----

- 51 -

	24	42	26	14	20	20	92	56	48	108	46	42
--	----	----	----	----	----	----	----	----	----	-----	----	----

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	68	36	22	28	26	16	148	118	86	106	78	4

Diagnosis:

Group #1: lower and upper back irritation

Group #2: gastroparesis

Group #3: fatigue

Group #3: low blood pressure

Group #4: depression

Group #5: high carbohydrate intake

Group #6: sinus congestion

=====

Patient 5 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	24	42	26	14	20	20	92	56	48	108	46	42

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	68	36	22	28	26	16	148	118	86	106	78	0

Diagnosis:

Group #1: gastroparesis

Group #2: nerve related slow peristaltic activity

Group #3: low blood pressure

Group #4: lower and upper back irritation

Group #5: depression

Group #5: chronic fatigue

Group #6: sinus congestion

Rule Outs:

Group #6: sinus infection

Group #7: depression

=====

Patient 6 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	16	8	24	86	128	124	138	192	102	122	46	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	74	36	18	108	108	100	142	200	90	130	200	200

Diagnosis:

Group #1: low blood pressure

Group #2: sinus congestion

Group #2: asthma

Group #3: reflux
 Group #4: helicobacter infection of stomach
 Group #5: shoulder pain
 Group #6: lower and upper back irritation

=====

Patient 7 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	186	182	140	102	170	188	172	44	136	158	174	58

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	150	184	174	200	200	182	182	40	122	130	132	40

Diagnosis:

Group #1: gastroparesis
 Group #2: low protein intake
 Group #2: low stomach function
 Group #2: weight loss
 Group #3: stress
 Group #4: neck damage
 Group #5: microcirculatory problem
 Group #6: post nasal drip

=====

Patient 8 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	172	196	188	46	68	60	102	78	130	130	94	108

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	108	88	80	58	46	94	108	116	132	90	126

Diagnosis:

Group #1: lower and upper back irritation
 Group #2: stress
 Group #3: post nasal drip
 Group #4: high carbohydrate intake

Rule Outs:

Group #3: lung cancer

=====

Patient 9 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	112	198	112	132	144	134	160	120	70	128	196

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	120	102	124	170	176	174	108	150	144	82	134	184

Diagnosis:

Group #1: lower back injury
 Group #1: neck injury
 Group #2: microcirculatory problem
 Group #2: fatigue
 Group #2: sleep disturbance
 Group #3: stomach irritation

=====

Patient 10

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	114	92	70	66	32	70	142	76	80	102	80	78

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	96	94	60	58	52	56	112	80	52	96	64	90

Diagnosis:

Group #1: lower and upper back irritation
 Group #1: nerve damage - neck
 Group #2: post nasal drip
 Group #3: hyperthyroid

=====

Patient 11

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	148	124	152	174	176	180	108	174	154	52	152	174

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	182	146	136	168	172	190	86	134	150	56	138	142

Diagnosis:

Group #1: nerve damage - lower back
 Group #1: bladder dysfunction
 Group #1: microcirculatory problem
 Group #1: fatigue
 Group #1: sleep disturbance
 Group #2: increased metabolism
 Group #3: anemia or low blood count

=====

Patient 12

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	88	108	128	120	116	148	148	88	120	80	100

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
--------	----	----	----	----	----	----	----	----	----	----	----	----

	118	86	90	146	118	124	172	128	80	128	194	182
--	-----	----	----	-----	-----	-----	-----	-----	----	-----	-----	-----

Diagnosis:

Group #1: nerve damage - neck

Group #1: microcirculatory-orthostatic hypotension

Group #1: microcirculatory problem

Group #1: sleep disturbance

Group #1: fatigue

Group #2: reflux

Group #2: shoulder pain

=====

Patient 13

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	190	190	200	142	148	162	154	186	158	142	124	150

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	182	152	122	194	182	166	178	144	176	124	118	166

Diagnosis:

Group #1: back injury

Group #2: depression

=====

Patient 14

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	38	20	24	30	56	82	140	34	44	70	148

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	90	18	20	20	50	44	60	96	54	36	158	134

Diagnosis:

Group #1: nerve damage - lower back

Group #1: nerve damage - neck

Group #2: microcirculatory-orthostatic hypotension

=====

Patient 15

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	34	26	46	10	80	18	38	22	36	22	10	10

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	24	16	14	28	44	36	46	16	42	34	8	16

Diagnosis:

Group #1: fatigue

- 56 -

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	28	36	36	30	50	48	32	170	44	28	140	130

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	48	52	38	48	34	32	56	132	28	26	104	142

Diagnosis:

Group #1: microcirculatory-orthostatic hypotension
 Group #1: nerve damage - upper and lower back
 Group #1: bladder dysfunction
 Group #2: food related sinus allergy
 Group #3: spicy or high fat ingestion
 Group #3: high carbohydrate intake
 Group #3: high fat intake
 Group #4: high carbohydrate intake
 Group #4: high fat intake

=====

Patient 20

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	174	136	104	150	148	170	136	106	152	128	110	138

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	162	130	122	138	152	130	122	94	112	120	122	138

Diagnosis:

Group #1: low protein intake
 Group #2: neck injury
 Group #2: nerve damage - neck
 Group #2: microcirculatory problem
 Group #2: fatigue
 Group #3: post nasal drip
 Group #3: lung cancer

=====

Patient 21

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	182	192	192	70	116	30	110	58	64	96	60	56

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	184	170	184	94	118	120	98	84	70	114	92	58

Diagnosis:

Group #1: high stress stress
 Group #1: anxiety

Group #1: hypertension
 Group #2: nerve damage - neck
 Group #2: kidney failure
 Group #3: large bowel issues
 Group #3: low stomach function
 Group #3: low bowel movements

=====

Patient 22 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	120	76	90	94	58	52	66	68	98	78	86	138

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	132	86	84	126	100	126	94	152	74	48	122	148

Diagnosis:

Group #1: microcirculatory problem
 Group #1: neck damage
 Group #1: lower back injury
 Group #1: fatigue
 Group #1: bladder dysfunction
 Group #2: reflux
 Group #3: sinus irritation
 Group #3: sinus allergy

=====

Patient 23 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	142	88	96	134	130	116	82	126	96	58	20	84

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	130	134	124	130	100	112	134	130	104	58	86	104

Diagnosis:

Group #1: nerve damage - lower back
 Group #1: fatigue
 Group #1: bladder dysfunction
 Group #1: lower back pain
 Group #2: sinus allergy
 Group #2: sinus irritation
 Group #3: depression

=====

Patient 24 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	78	40	38	20	34	24	88	50	78	116	82	106

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	60	48	50	22	32	26	102	94	82	116	16	0

Diagnosis:

Group #1: upper and lower back irritation
 Group #1: bladder dysfunction
 Group #2: fatigue
 Group #2: coronary artery disease
 Group #2: low blood pressure
 Group #3: male
 Group #3: possible prostate enlargement
 Group #3: prostate cancer
 Group #3: lower back injury

=====

Patient 25 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	116	86	86	110	58	90	116	42	104	146	72	74

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	142	118	106	66	76	68	96	34	68	122	84	64

Diagnosis:

Group #1: lower back injury
 Group #1: back injury
 Group #1: prostate cancer
 Group #2: nerve damage - neck
 Group #2: bladder dysfunction
 Group #3: post nasal drip
 Group #3: lung cancer
 Group #4: low protein intake
 Group #5: hypothyroid disease

=====

Patient 26 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	88	52	88	60	30	52	76	92	64	98	38	94

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	80	52	92	54	40	72	114	118	70	64	30	80

Diagnosis:

Group #1: depression
 Group #1: fatigue
 Group #2: lower back injury

Group #2: lower back pain

Group #3: depression

=====

Patient 27 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	48	76	92	58	56	34	60	134	90	76	46	102

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	90	44	74	62	66	24	46	90	60	58	86	88

Diagnosis:

Group #1: food related sinus allergy

Group #2: microcirculatory problem

Group #2: depression

Group #3: large bowel issues

=====

Patient 28 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	86	74	32	88	62	64	46	58	84	104	18	72

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	126	58	56	62	26	62	80	86	80	104	90	42

Diagnosis:

Group #1: coronary artery disease

Group #2: post nasal drip

Group #3: lower back injury

Group #3: lower back pain

Group #4: male

Group #4: prostate cancer

=====

Patient 29 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	68	66	78	38	60	46	104	74	68	118	122	68

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	106	56	78	54	106	84	144	80	70	86	160	140

Diagnosis:

Group #1: lower and upper back irritation

Group #1: shoulder pain

Group #1: bladder dysfunction

Group #2: reflux

Group #2: shoulder pain
Group #2: stomach irritation

=====

Patient 30 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	150	152	96	8	34	26	136	140	134	132	52	140

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	166	152	96	34	34	22	126	68	128	128	96	122

Diagnosis:

- Group #1: high carbohydrate intake
- Group #1: low protein intake
- Group #2: lower and upper back irritation
- Group #2: neck irritation
- Group #2: bladder dysfunction
- Group #3: post nasal drip
- Group #3: esophageal obstruction
- Group #3: food related sinus allergy

=====

Patient 31 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	96	78	106	66	18	34	70	54	62	84	58	132

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	84	46	62	84	42	48	82	132	52	66	64	114

Diagnosis:

Group #1: depression
Group #2: fatigue
Group #3: post nasal drip
Group #3: sinus allergy
Group #4: stomach irritation
Group #5: hyperthyroid
Group #6: migraines

=====

Patient 32 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	164	170	66	62	98	174	78	158	176	98	118

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	180	170	160	66	84	64	188	128	176	164	106	102

Diagnosis:

Group #1: hypertension

Group #1: stress

Group #2: high carbohydrate intake

Group #2: low protein intake

Group #3: lower and upper back irritation

Group #3: bladder infection

Group #3: bladder dysfunction

Patient 33

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	80	74	46	56	50	80	44	68	84	72	34	78

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	116	84	68	78	64	62	74	34	40	98	76	60

Diagnosis:

Group #1: nerve damage - neck

Group #3: lower and upper back irritation

Group #4: post nasal drip

Patient 34

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	114	96	152	166	112	40	12	54	68	28	28

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	146	74	72	198	180	190	82	8	58	62	72	92

Diagnosis:

Group #1: weight loss

Group #1: low protein intake

Group #2: post nasal drip

Group #3: nerve damage - neck

Group #3: nerve damage - lower back

Group #3: bladder dysfunction

Patient 35

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	32	6	12	34	58	106	34	102	52	40	78	92

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	30	8	36	34	32	52	76	76	62	20	116	160

Diagnosis:

- Group #1: hypotension
- Group #1: microcirculatory-orthostatic hypotension
- Group #1: blood pressure medications overdose
- Group #2: nerve damage - lower back
- Group #2: bladder dysfunction
- Group #3: sinus congestion
- Group #4: large bowel issues

=====

Patient 36 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	200	172	96	136	106	126	164	138	120	116	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	200	190	114	114	124	172	200	108	128	198	200

Diagnosis:

- Group #1: nerve damage - upper and lower back
- Group #1: bladder dysfunction
- Group #2: reflux
- Group #3: post nasal drip
- Group #4: depression
- Group #5: trouble swallowing

=====

Patient 37 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	144	128	144	108	188	156	192	122	128	170	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	160	134	86	166	88	96	152	200	92	136	158	200

Diagnosis:

- Group #1: nerve damage - upper and lower back
- Group #1: bladder dysfunction
- Group #2: coronary artery disease
- Group #3: food related stomach irritation (spicy ,cheese)
- Group #4: hypothyroid disease

=====

Patient 38 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	56	56	50	44	30	26	86	26	70	90	26	26

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
--------	----	----	----	----	----	----	----	----	----	----	----	----

- 63 -

	88	70	76	30	22	22	116	40	64	122	24	18
--	----	----	----	----	----	----	-----	----	----	-----	----	----

Diagnosis:

- Group #1: back injury
- Group #2: low protein intake
- Group #2: high carbohydrate intake
- Group #3: stress
- Group #4: low food intake

=====

Patient 39

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	150	152	100	126	148	158	140	150	124	126	96	152

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	166	126	122	128	190	154	146	142	108	90	132	192

Diagnosis:

- Group #1: nerve damage - upper and lower back
- Group #2: coronary artery disease
- Group #3: female
- Group #3: ovulation

=====

Patient 40

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	172	156	132	32	64	42	182	84	188	180	112	132

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	108	114	86	48	50	36	128	98	172	138	118	142

Diagnosis:

- Group #1: high carbohydrate intake
- Group #1: low protein intake
- Group #2: lower and upper back irritation
- Group #2: bladder dysfunction
- Group #3: stress

=====

Patient 41

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	176	98	98	86	182	148	82	198	92	66	172	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	164	98	76	94	188	126	80	188	86	96	188	192

Diagnosis:

- Group #1: hyperthyroid
- Group #2: high fat intake
- Group #2: spicy or high fat injection
- Group #3: post nasal drip
- Group #4: nerve damage - upper and lower back
- Group #4: MS
- Group #5: low blood pressure
- Group #5: hypotension

Patient 42

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	98	86	84	90	58	66	116	154	172	64	112	152

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	154	112	86	112	102	76	66	136	154	86	156	132

Diagnosis:

- Group #1: neck injury
- Group #1: nerve damage - lower back
- Group #2: hypotension
- Group #2: fatigue
- Group #2: headaches

Patient 43

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	58	42	36	18	14	22	62	16	32	80	10	42

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	86	54	50	22	62	54	64	14	80	92	16	18

Diagnosis:

- Group #1: lower and upper back irritation
- Group #1: neck irritation
- Group #2: low protein intake
- Group #3: hyperthyroid
- Group #4: post nasal drip

Patient 44

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	20	46	28	8	18	16	68	108	16	24	50	64

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
--------	----	----	----	----	----	----	----	----	----	----	----	----

- Group #1: fatigue
- Group #1: sleep disturbance
- Group #1: possible coronary artery disease
- Group #1: microcirculatory-orthostatic hypotension
- Group #1: microcirculatory problem
- Group #1: lack of sleep
- Group #2: depression
- Group #2: inflammation
- Group #3: reflux
- Group #4: bladder dysfunction

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	78	54	30	34	24	44	64	42	62	88	40	64

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	94	44	30	76	52	94	98	70	48	42	78	72

- Group #1: microcirculatory problem
- Group #1: possible coronary artery disease
- Group #2: lower back injury
- Group #2: lower back pain
- Group #2: lack of sleep
- Group #3: shoulder pain
- Group #4: post nasal drip

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	106	94	72	46	82	106	86	80	100	92	102	146

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	112	60	86	90	88	126	60	164	54	60	200	176

- Group #1: possible coronary artery disease
- Group #2: nerve damage - upper and lower back
- Group #2: bladder dysfunction
- Group #3: shoulder pain
- Group #4: shoulder pain
- Group #5: reflux

Group #6: spicy or high fat injection

Patient 47

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	168	162	114	170	154	166	176	156	166	120	162

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	118	122	174	154	166	156	194	150	142	166	200

Diagnosis:

Group #1: possible coronary artery disease

Group #2: inflammation

Patient 48

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	92	64	54	82	68	112	64	114	200	80	140	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	122	68	112	64	122	174	100	146	200	38	134	200

Diagnosis:

Group #1: microcirculatory problem

Group #1: microcirculatory-orthostatic hypotension

Group #1: possible coronary artery disease

Group #2: lower back injury

Group #2: nerve damage - lower back

Group #2: neck injury

Group #2: neck irritation

Group #3: helicobacter infection of stomach

Group #4: shoulder pain

Group #5: reflux

Group #6: depression

Patient 49

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	114	108	124	22	22	46	132	68	84	128	44	78

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	92	44	60	26	50	100	124	54	80	128	34	50

Diagnosis:

Group #1: stress

Group #2: back injury

Group #3: post nasal drip

Patient 50

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	68	38	128	128	144	46	42	42	86	26	76

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	54	64	60	48	136	108	42	30	62	56	48	38

Diagnosis:

Group #1: low blood count

Group #2: nerve damage - upper and lower back

Group #2: nerve damage - neck

Group #3: hyperthyroid

Group #4: large bowel issues

Group #5: duodenal irritation

Group #6: low protein intake

Group #7: sinus congestion

Group #7: post nasal drip

Patient 51

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	128	130	52	24	58	62	50	122	40	72	144

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	128	112	140	116	40	66	132	184	76	106	160	180

Diagnosis:

Group #1: depression

Group #2: hypertension

Group #3: nerve damage - neck

Group #3: nerve damage - lower back

Group #3: bladder dysfunction

Group #4: food related sinus allergy

Group #4: food related stomach irritation (spicy ,cheese)

Group #4: reflux

Patient 52

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	60	108	112	38	16	14	80	72	70	96	48	76

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	150	138	88	56	82	80	84	86	100	82	94

Diagnosis:

Group #1: hyperthyroid
 Group #2: stress
 Group #2: hypertension
 Group #3: back injury
 Group #4: large bowel issues

=====

Patient 53

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	88	104	70	50	80	82	86	96	68	80	36	88

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	86	40	52	52	48	64	90	88	182	96	124	138

Diagnosis:

Group #1: possible coronary artery disease
 Group #1: chronic fatigue
 Group #1: blood pressure medications overdose
 Group #1: fatigue
 Group #1: migraines
 Group #2: neck irritation
 Group #2: neck injury
 Group #2: shoulder pain
 Group #3: reflux

=====

Patient 54

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	92	62	64	36	24	38	110	48	80	90	32	70

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	112	102	96	32	34	98	92	80	56	94	76	78

Diagnosis:

Group #1: post nasal drip
 Group #2: high stress
 Group #3: lower back pain
 Group #4: high carbohydrate intake
 Group #5: large bowel issues

=====

Patient 55

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	198	174	200	200	200	200	200	200	142	164	148

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	178	144	190	198	188	154	182	170	154	148	184

Diagnosis:

Group #1: nerve damage - lower back

Group #1: bladder dysfunction

Group #2: neck irritation

Group #3: microcirculatory problem

Group #4: sinus irritation

=====

Patient 56

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	56	44	52	56	46	50	34	70	48	14	80	96

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	62	46	82	48	84	42	44	58	16	54	44

Diagnosis:

Group #1: sinus irritation

Group #2: duodenal irritation

Group #3: stomach irritation

Group #4: shoulder pain

Group #4: nerve damage - lower back

Group #4: bladder dysfunction

Rule Outs:

Group #1: lung cancer

=====

Patient 57

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	124	136	124	148	154	172	132	188	176	138	148

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	116	90	88	80	124	186	162	188	196	176	172

Diagnosis:

Group #1: microcirculatory problem

Group #2: chronic fatigue

Group #3: neck injury

Group #3: headaches

Group #4: lower back injury

Group #4: lower back pain

Group #5: shoulder pain

Group #6: stomach irritation

Group #7: reflux

Patient 58

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	70	18	22	28	54	52	112	74	98	126	38	82

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	62	56	48	94	62	36	88	60	68	112	38	50

Diagnosis:

Group #1: microcirculatory problem

Group #1: coronary artery disease

Group #1: headaches

Group #2: duodenal irritation

Group #3: neck irritation

Group #4: back injury

Group #4: bladder dysfunction

Group #5: microcirculatory -orthostatic hypotention related to neck,
back injury

Patient 59

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	110	92	120	16	70	64	50	92	10	30	30	96

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	54	28	32	106	160	164	46	102	12	48	22	48

Diagnosis:

Group #1: depression

Group #2: microcirculatory -orthostatic hypotention related to
neck, back injury

Group #3: nerve damage - upper and lower back

Group #3: bladder dysfunction

Group #4: gallbladder dysfunction

Group #5: coronary artery disease

Rule Outs:

Group #3: MS

Patient 60

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	42	84	62	58	64	60	138	116	76	148	84	104

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
--------	----	----	----	----	----	----	----	----	----	----	----	----

- 71 -

	92	80	36	70	96	122	146	150	74	130	96	184
--	----	----	----	----	----	-----	-----	-----	----	-----	----	-----

Diagnosis:

Group #1: coronary artery disease

Group #1: microcirculatory problem

Group #1: migraines

Group #2: microcirculatory -orthostatic hypotention related to
neck, back injury

Group #3: stomach irritation

Group #4: large bowel issues

Group #4: large intestinal irritation

Group #5: sinus congestion

=====

Patient 61

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	106	74	62	100	102	112	108	152	132	134	128	138

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	146	74	58	112	106	100	120	170	108	94	154	172

Diagnosis:

Group #1: coronary artery disease

Group #1: hypotension

Group #1: blood pressure medications overdose

Group #1: microcirculatory -orthostatic hypotention related to
neck, back injury

Group #2: food related stomach irritation (spicy ,cheese)

Group #3: post nasal drip

Group #4: lower and upper back irritation

Group #4: neck irritation

Group #5: depression

=====

Patient 62

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	198	100	104	110	118	118	150	130	120	170	90	184

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	136	78	78	148	140	130	170	102	102	164	110	160

Diagnosis:

Group #1: coronary artery disease

Group #1: blood pressure medications overdose

Group #1: microcirculatory problem

Group #2: microcirculatory -orthostatic hypotention related to

- 72 -

neck, back injury

Group #3: post nasal drip

Rule Outs:

Group #1: headaches

Group #1: migraines

Group #3: lung cancer

Group #3: lung disease

Group #4: low back irritation

Group #4: bladder dysfunction

Group #5: nerve damage - neck

Group #6: stomach irritation

=====

Patient 63

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	108	142	124	42	42	42	72	104	110	22	50	104

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	38	30	32	36	52	18	74	70	104	90	88	44

Diagnosis:

Group #1: depression

Group #2: coronary artery disease

Group #2: chronic fatigue

Group #3: neck irritation

Group #4: nerve damage - lower back

Group #4: bladder dysfunction

Group #4: male

Group #4: possible prostate enlargement

Rule Outs:

Group #1: depression

Group #2: microcirculatory problem

Group #2: coronary artery disease

=====

Patient 64

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	132	110	106	120	106	90	154	110	112	128	68	100

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	116	100	106	166	124	160	140	116	78	130	190	144

Diagnosis:

Group #1: shoulder pain

Group #2: nerve damage - neck

Group #2: neck irritation

Group #3: microcirculatory problem

Group #3: headaches

=====

Patient 65

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	122	114	104	36	104	46	142	84	118	146	78	118

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	124	110	50	68	70	118	88	134	170	108	118

Diagnosis:

Group #1: post nasal drip

Group #2: neck irritation

Group #2: back injury

Group #3: low food intake

=====

Patient 66

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	80	44	54	36	44	32	86	62	102	132	46	34

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	128	84	58	120	24	28	68	68	138	148	72	60

Diagnosis:

Group #1: lower and upper back irritation

Group #1: bladder dysfunction

Group #2: post nasal drip

Group #3: duodenal irritation

Group #4: high carbohydrate intake

Group #5: low food intake

Rule Outs:

Group #1: prostate cancer

=====

Patient 67

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	76	40	20	52	98	88	96	104	82	64	124	90

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	72	86	74	98	70	90	60	158	96	126	152	136

Diagnosis:

Group #1: lower back pain

Group #1: lower back injury

- 74 -

Group #1: bladder dysfunction
 Group #2: shoulder pain
 Group #2: upper back irritation
 Group #3: microcirculatory problem
 Group #3: coronary artery disease
 Group #3: headaches
 Group #4: depression

Rule Outs:

Group #3: coronary artery disease

Patient 68

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	72	88	66	18	32	16	62	26	66	68	60	40

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	88	30	24	54	36	52	70	24	104	80	64	68

Diagnosis:

Group #1: coronary artery disease
 Group #2: neck irritation
 Group #2: headaches
 Group #3: low back irritation

Patient 69

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	80	52	82	64	60	36	152	38	160	146	138	52

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	42	30	80	66	76	62	134	44	142	152	138	68

Diagnosis:

Group #1: microcirculatory problem
 Group #2: sinus congestion
 Group #3: bladder infection
 Group #4: back injury
 Group #5: low protein intake
 Group #6: low bowel movements

Patient 70

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	98	74	46	14	26	30	104	200	68	106	96	192

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
--------	----	----	----	----	----	----	----	----	----	----	----	----

- 75 -

	136	70	46	24	16	28	86	82	80	142	100	98
--	-----	----	----	----	----	----	----	----	----	-----	-----	----

Diagnosis:

- Group #1: sinus congestion
- Group #2: sinus allergy
- Group #3: coronary artery disease
- Group #4: high carbohydrate intake
- Group #5: allergy to food
- Group #6: neck irritation
- Group #7: migraines

=====

Patient 71

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	140	120	86	112	120	116	82	72	84	74	146	100

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	162	132	118	154	130	102	76	78	130	80	118	146

Diagnosis:

- Group #1: sinus congestion
- Group #2: hyperthyroid
- Group #3: nerve damage - upper and lower back
- Group #3: bladder dysfunction
- Group #4: neck irritation
- Group #5: shoulder pain
- Group #6: low protein intake
- Group #7: coronary artery disease
- Group #8: reflux

Rule Outs:

- Group #1: lung cancer
- Group #1: lung disease

=====

Patient 72

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	130	118	112	88	130	128	156	48	54	130	88	68

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	146	110	108	148	148	158	130	44	78	138	150	66

Diagnosis:

- Group #1: weight loss
- Group #1: low protein intake
- Group #1: low food intake
- Group #2: low protein intake

- 76 -

Group #3: nerve damage - neck

Group #3: neck injury

Group #4: low back irritation

Group #5: shoulder pain

Group #6: post nasal drip

Patient 73

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	96	72	58	114	142	146	86	66	60	68	52	92

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	94	70	60	80	92	108	78	46	76	56	44	94

Diagnosis:

Group #1: large bowel issues

Group #2: hyperthyroid

Group #3: nerve damage - upper and lower back

Group #4: low food intake

Group #5: coronary artery disease

Group #6: headaches

Patient 74

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	168	152	154	170	166	186	180	186	168	188	80	148

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	180	124	126	160	142	158	140	98	152	182	92	90

Diagnosis:

Group #1: lower back pain

Group #1: lower back injury

Group #1: bladder dysfunction

Group #2: post nasal drip

Group #2: allergy

Group #3: large bowel issues

Patient 75

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	64	70	88	136	172	194	136	148	170	114	88	168

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	150	92	86	178	168	190	136	96	172	82	164	200

- 77 -

Diagnosis:

Group #1: low blood pressure
 Group #1: dysautonomia
 Group #1: neck irritation
 Group #1: headaches
 Group #1: migraines
 Group #2: nerve damage - lower back
 Group #2: bladder dysfunction
 Group #3: shoulder pain
 Group #3: reflux
 Group #3: stomach irritation
 Group #4: sinus congestion

Patient 76

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	152	134	70	98	132	156	76	80	68	82	42	46

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	154	48	30	116	110	110	94	40	50	72	22	68

Diagnosis:

Group #1: orthostatic hypotension
 Group #1: migraines
 Group #2: nerve damage - neck
 Group #3: post nasal drip
 Group #4: microcirculatory problem
 Group #4: microcirculatory -orthostatic hypotension related to neck, back injury
 Group #5: weight loss
 Group #5: low food intake

Patient 77

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	158	106	108	110	170	80	76	88	42	74	54

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	72	70	102	120	160	86	44	70	80	72	62

Diagnosis:

Group #1: coronary artery disease
 Group #1: migraines
 Group #2: nerve damage - upper and lower back
 Group #2: bladder dysfunction
 Group #3: large bowel issues

Group #4: hyperthyroid
Group #5: post nasal drip
Group #6: microcirculatory problem

Patient	78	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	114	108	106	106	94	94	62	126	70	74	62	98

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	72	76	120	88	50	80	82	70	72	96	140

Diagnosis:

- Group #1: coronary artery disease
- Group #2: nerve damage - upper and lower back
- Group #2: bladder dysfunction
- Group #3: depression
- Group #4: post nasal drip
- Group #5: food related stomach irritation (spicy ,cheese)

Patient	79	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	120	98	104	26	40	60	116	90	92	160	124	98

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	130	128	88	80	68	54	120	54	104	140	106	88

Diagnosis:

Group #1: lower back pain
Group #1: lower back injury
Group #2: post nasal drip
Group #3: shoulder pain
Group #3: upper back irritation

Rule Outs:

Group #2: lung disease

Patient	80	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	156	146	130	94	104	118	174	162	196	138	94	140

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	182	168	174	100	70	126	182	172	160	138	128	172

Diagnosis:

Group #1: neck injury
Group #1: neck irritation
Group #2: depression

Patient	81	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	152	86	94	110	116	118	76	174	110	92	88	110

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	152	82	84	42	42	78	76	182	68	70	122	124

Diagnosis:

- Group #1: post nasal drip
- Group #1: allergy
- Group #2: coronary artery disease
- Group #3: nerve damage - neck
- Group #3: nerve damage - lower back
- Group #4: microcirculatory-orthostatic hypotension
- Group #4: migraines
- Group #4: bladder dysfunction

Patient	82	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	162	146	154	134	136	118	100	200	114	98	200	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	200	142	182	108	112	120	200	124	80	188	200

Diagnosis:

- Group #1: nerve damage - upper and lower back
- Group #1: nerve damage - neck
- Group #1: bladder dysfunction
- Group #2: microcirculatory problem
- Group #3: food related stomach irritation (spicy ,cheese)
- Group #3: spicy or high fat injection
- Group #4: post nasal drip

Patient	83	Measurements:
---------	----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	120	118	142	134	120	92	146	184	188	182	174	176

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	180	108	130	132	130	114	158	184	190	170	186	192

Diagnosis:

Group #1: microcirculatory-orthostatic hypotension
 Group #1: fatigue
 Group #1: coronary artery disease
 Group #1: low blood pressure
 Group #2: post nasal drip
 Group #2: sinus congestion
 Group #3: neck irritation
 Group #3: lower back pain

=====

Patient 84 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	144	162	96	116	132	84	90	60	108	84	140

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	108	98	154	140	130	132	134	126	66	74	144	148

Diagnosis:

Group #1: microcirculatory problem
 Group #2: stress
 Group #3: nerve damage - upper and lower back
 Group #3: nerve damage - neck
 Group #3: bladder dysfunction
 Group #4: reflux
 Group #6: sinus congestion

=====

Patient 85 Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	72	82	70	102	158	126	78	102	90	48	90	122

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	152	162	130	164	164	102	32	112	82	44	98	102

Diagnosis:

Group #1: bladder dysfunction
 Group #1: nerve damage - lower back
 Group #1: nerve damage - neck
 Group #2: hyperthyroid
 Group #3: stress
 Group #4: microcirculatory problem
 Group #5: sinus congestion

=====

Patient 86 Measurements:

- 81 -

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	132	98	124	136	132	146	122	114	92	80	112	172

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	114	116	104	152	162	154	98	114	86	74	138	128

Diagnosis:

Group #1: nerve damage - lower back

Group #1: nerve damage - neck

Group #2: fatigue

Rule Outs:

Group #1: MS

Group #1: bladder dysfunction

Group #2: coronary artery disease

Group #2: reflux

Group #3: hyperthyroid

=====

Patient 87

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	136	106	136	74	58	50	170	94	122	168	158	116

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	96	92	124	70	108	48	160	122	170	128	138	108

Diagnosis:

Group #1: fatigue

Group #1: neck irritation

Group #1: back injury

Group #1: shoulder pain

=====

Patient 88

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	102	124	134	88	68	66	46	56	50	44	22	44

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	62	64	62	102	90	94	14	60	50	20	50	64

Diagnosis:

None

Rule Outs:

Group #1: MS

Group #1: nerve damage - lower back

Group #1: nerve damage - neck

Group #1: bladder dysfunction

Group #2: stress

Group #3: duodenal irritation

Patient 89

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	78	38	50	78	66	60	64	14	24	24	30	18

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	86	62	46	68	26	54	18	30	18	16	34	28

Diagnosis:

Group #1: post nasal drip

Group #2: duodenal irritation

Group #3: nerve damage - neck

Group #3: nerve damage - lower back

Group #3: bladder dysfunction

Rule Outs:

Group #1: post nasal drip

Group #1: lung cancer

Group #1: lung disease

Patient 90

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	68	72	54	36	58	106	78	102	128	76	80

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	90	76	82	50	180	76	130	86	104	106	90	98

Diagnosis:

Group #1: back injury

Group #1: bladder dysfunction

Rule Outs:

Group #2: thyroid problem

Group #2: pituitary problem

Patient 91

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	116	78	84	46	64	52	146	64	110	100	72	80

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	94	98	74	82	84	42	138	72	120	122	96	62

Diagnosis:

Measurements:

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	148	136	140	194	170	172	94	146	94	92	184	170

Group #1: nerve damage - upper and lower back
Group #1: bladder dysfunction
Group #2: shoulder pain
Group #2: reflux
Group #3: duodenal irritation
Group #3: stress

Measurements:

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	78	36	36	70	42	68	54	138	80	70	180	158

- Group #1: nerve damage - lower back
- Group #1: bladder dysfunction
- Group #2: shoulder pain
- Group #3: reflux
- Group #4: sinus allergy
- Group #4: sinus congestion
- Group #5: stomach irritation

Measurements:

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	112	32	24	60	86	116	22	18	14	20	22	18

Diagnosis:

Group #1: nerve damage - upper and lower back

Group #1: nerve damage - neck

Group #2: microcirculatory -orthostatic hypotention related to neck,
back injury

Group #2: microcirculatory problem

Group #3: post nasal drip

Group #4: large bowel issues

Group #4: large intestinal irritation

Group #5: thyroid problem

Rule Outs:

Group #6: gastroparesis

Group #6: MS

Group #6: bladder dysfunction

=====

Patient 95

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	176	156	156	10	24	26	200	186	186	188	190	188

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	176	182	144	56	52	42	200	162	200	200	186	142

Diagnosis:

Group #1: back injury

Group #1: neck injury

Group #1: neck irritation

Group #1: lower and upper back irritation

Group #2: shoulder pain

Group #3: reflux

Group #4: food related stomach irritation (spicy ,cheese)

Group #5: high carbohydrate intake

Group #6: food related sinus allergy

Group #6: post nasal drip

=====

Patient 96

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	130	120	154	148	124	88	98	128	114	92	108

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	170	128	152	160	140	96	120	102	106	66	96	120

Diagnosis:

Group #1: nerve damage - lower back

Group #2: duodenal irritation

Group #3: post nasal drip

Group #4: stress

Group #5: hyperthyroid

=====

Patient 97

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	180	144	142	64	16	40	104	36	46	132	58	52

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	150	102	116	70	26	48	136	44	28	128	14	66

Diagnosis:

Group #1: high carbohydrate intake

Group #1: low protein intake

Group #2: high stress

Group #3: post nasal drip

Group #4: lower back injury

Rule Outs:

Group #4: bladder dysfunction

=====

Patient 98

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	132	158	138	98	68	98	110	62	74	60	50	90

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	162	154	76	52	72	70	82	30	100	94	40	92

Diagnosis:

Group #1: high stress

Group #2: nerve damage - neck

Group #2: nerve damage - lower back

Group #2: neck irritation

Group #3: low protein intake

=====

Patient 99

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	178	162	174	178	186	162	196	196	146	194	164	178

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	148	136	140	146	180	156	188	194	148	196	170	172

Diagnosis:

Group #1: neurodeficiency due to neck injury

Group #1: microcirculatory problem

Rule Outs:

- Group #1: coronary artery disease
- Group #2: nerve damage - neck
- Group #3: low back irritation
- Group #3: lower back pain
- Group #3: lower back injury

Patient 100

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	88	132	76	78	50	186	106	162	178	178	124

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	88	132	120	74	44	162	74	156	164	0	0

Diagnosis:

- Group #1: lower back injury
- Group #1: neck injury
- Group #3: post nasal drip
- Group #4: shoulder pain
- Group #4: reflux

Rule Outs:

- Group #1: bladder dysfunction
- Group #2: microcirculatory problem
- Group #2: headaches
- Group #2: migraines
- Group #3: post nasal drip

Patient 101

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	104	152	174	148	82	186	80	146	174	174	122

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	48	44	124	134	140	66	180	106	164	172	178	90

Diagnosis:

- Group #1: microcirculatory problem
- Group #2: reflux
- Group #2: sinus congestion
- Group #3: neck irritation
- Group #3: low back irritation

Rule Outs:

- Group #2: esophageal obstruction
- Group #2: sinus infection
- Group #3: nerve related slow peristaltic activity

- 87 -

Group #3: bladder dysfunction

Group #4: stress

Patient 102

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	122	124	122	92	76	148	170	102	110	148	132	182

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	116	138	146	106	108	104	154	144	106	146	108	178

Diagnosis:

Group #1: stress

Group #1: nerve damage - neck

Group #1: back injury

Group #2: stomach irritation

Rule Outs:

Group #1: depression

Group #3: large bowel issues

Patient 103

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	22	34	34	60	66	60	84	136	94	96	110	90

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	68	56	62	76	72	70	82	136	98	70	128	126

Diagnosis:

Group #1: low blood pressure

Group #2: food related stomach irritation (spicy ,cheese)

Group #3: sinus congestion

Group #4: neck irritation

Group #4: low back irritation

Group #5: shoulder pain

Rule Outs:

Group #1: blood pressure medications overdose

Group #2: allergy to food

Patient 104

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	94	50	74	54	96	166	66	110	62	52	154	126

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	172	66	56	136	172	112	56	26	44	44	90	112

,cheese

Diagnosis:

Group #1: low blood pressure
 Group #1: orthostatic hypotention
 Group #2: nerve damage - lower back
 Group #2: nerve damage - neck
 Group #2: bladder dysfunction
 Group #4: shoulder pain
 Group #7: duodenal irritation
 Group #8: reflux

Rule Outs:

Group #2: MS
 Group #4: depression
 Group #5: thyroid problem
 Group #6: thyroid problem
 Group #7: large bowel issues

=====

Patient 105

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	144	132	72	68	114	126	162	156	84	128	166

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	146	144	118	100	120	114	74	170	176	144	148	176

Diagnosis:

Group #1: neck irritation
 Group #2: nerve damage - lower back
 Group #3: thyroid problem
 Group #4: stomach irritation
 Group #5: shoulder pain
 Group #6: post nasal drip
 Group #7: food related stomach irritation (spicy ,cheese)

Rule Outs:

Group #2: bladder dysfunction

=====

Patient 106

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	130	136	104	128	108	158	140	50	156	136	138

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	174	142	158	160	142	144	162	180	40	124	176	134

Diagnosis:

- 89 -

Group #1: nerve damage - neck

Group #2: back injury

Group #3: nerve damage - neck

Group #3: neck injury

Group #4: stress

Group #5: post nasal drip

Rule Outs:

Group #5: lung disease

Patient 107

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	138	130	52	76	88	100	80	90	140	46	100

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	116	112	164	166	114	110	74	92	128	76	66

Diagnosis:

Group #1: nerve damage - neck

Group #2: back injury

Group #3: post nasal drip

Group #4: stress

Group #5: nerve damage - neck

Group #6: low food intake

Rule Outs:

Group #2: male

Group #2: prostate cancer

Group #2: bladder dysfunction

Group #7: thyroid problem

Patient 108

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	44	56	60	132	134	112	70	22	74	64	16	14

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	86	74	46	138	84	86	80	20	58	52	68	42

Diagnosis:

Group #1: weight loss

Group #1: low food intake

Group #1: low protein intake

Group #2: sinus congestion

Group #2: post nasal drip

Patient 109

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	62	72	28	68	68	54	108	96	88	78	56	126

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	50	50	50	78	46	54	94	92	80	62	104	108

Diagnosis:

- Group #1: low blood pressure
- Group #2: sinus infection
- Group #3: reflux
- Group #3: irritation of stomach lining
- Group #4: large bowel issues

Rule Outs:

- Group #1: coronary artery disease
- Group #2: sinus infection
- Group #2: infection bacterial
- Group #3: infection bacterial
- Group #5: hypothyroid disease

=====

Patient 110

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	130	164	158	44	60	58	146	132	146	158	134	150

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	122	116	110	24	46	82	170	146	126	162	144	130

Diagnosis:

- Group #1: depression
- Group #2: high carbohydrate intake
- Group #3: low back irritation
- Group #3: neck irritation
- Group #6: infection bacterial

Rule Outs:

- Group #3: bladder dysfunction
- Group #4: shoulder pain
- Group #5: reflux

=====

Patient 111

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	98	70	44	104	54	54	108	50	50	106	178

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	82	28	40	56	30	100	48	120	50	62	98	166

Diagnosis:

Group #1: nerve damage - upper and lower back
 Group #1: nerve damage - neck
 Group #3: dysautonomia
 Group #4: stomach irritation
 Group #5: post nasal drip
 Group #6: reflux
 Group #7: food related stomach irritation (spicy ,cheese)
 Group #8: large bowel issues

Rule Outs:

Group #2: coronary artery disease
 Group #3: orthostatic hypotention

=====

Patient 112

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	122	150	146	108	142	46	156	182	96	92	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	154	154	182	178	180	102	86	156	60	80	184

Diagnosis:

Group #1: nerve damage - lower back
 Group #2: neck injury
 Group #3: stomach irritation
 Group #4: depression
 Group #5: sinus allergy
 Group #6: stress
 Group #7: large bowel issues

Rule Outs:

Group #6: thyroid problem

=====

Patient 113

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	136	108	98	120	76	98	102	90	104	108	70	118

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	144	112	98	148	132	104	76	116	100	124	84	76

Diagnosis:

Group #1: low blood count
 Group #1: high blood sugar
 Group #2: post nasal drip
 Group #3: lower back injury

- 92 -

Group #3: nerve damage - lower back

Group #4: post nasal drip

Rule Outs:

Group #2: lung cancer

Group #2: lung disease

Group #4: lung cancer

Group #4: lung disease

=====

Patient 114

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	160	160	132	86	120	136	176	56	152	200	106	98

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	132	94	74	150	162	156	132	80	86	146	166	100

Diagnosis:

Group #1: nerve damage - neck

Group #1: neck irritation

Group #2: migraines

Group #2: microcirculatory problem

Group #4: back injury

Group #6: shoulder pain

Group #7: post nasal drip

Group #8: low food intake

Group #8: low protein intake

Rule Outs:

Group #3: coronary artery disease

Group #4: bladder dysfunction

Group #5: male

Group #5: prostate cancer

=====

Patient 115

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	136	92	114	82	134	126	116	120	138	146	132	124

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	138	82	94	72	76	118	136	140	140	166	104	132

Diagnosis:

Group #1: migraines

Group #1: fatigue

Group #2: neck irritation

Group #2: back injury

Group #3: orthostatic hypotension

Rule Outs:

Group #1: coronary artery disease
 Group #3: bladder dysfunction
 Group #4: sinus allergy
 Group #4: post nasal drip

=====

Patient 116

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	166	136	120	184	182	184	46	84	198	46	58	148

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	160	136	130	182	184	180	70	94	92	66	118	116

Diagnosis:

Group #1: weight loss
 Group #1: low protein intake
 Group #2: post nasal drip
 Group #2: nerve damage - lower back
 Group #2: bladder dysfunction
 Group #3: neck irritation
 Group #3: nerve damage - neck

Rule Outs:

Group #1: weight loss
 Group #2: lung cancer
 Group #2: lung disease

=====

Patient 117

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	124	108	88	162	136	182	104	76	98	108	80	76

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	158	106	178	188	174	118	122	102	130	130	126

Diagnosis:

Group #1: microcirculatory problem
 Group #1: coronary artery disease
 Group #2: post nasal drip
 Group #3: nerve damage - neck
 Group #4: nerve damage - lower back

Rule Outs:

Group #1: coronary artery disease
 Group #4: bladder dysfunction
 Group #5: thyroid problem
 Group #6: large bowel issues

Group #7: duodenal irritation

Group #8: weight loss

=====

Patient 118

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	96	94	30	56	52	86	86	86	98	56	78

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	134	80	80	98	86	64	108	76	82	88	90	74

Diagnosis:

Group #1: post nasal drip

Rule Outs:

Group #1: lung cancer

Group #1: lung disease

=====

Patient 119

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	186	174	162	86	100	90	124	88	200	112	132	124

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	170	100	150	138	136	88	144	100	188	126	160	116

Diagnosis:

Group #1: microcirculatory problem

Group #2: stress

Group #3: post nasal drip

Group #4: neck injury

Group #4: neck irritation

Group #5: low protein intake

Group #6: nerve damage - lower back

Rule Outs:

Group #6: bladder dysfunction

Group #7: large bowel issues

Group #8: thyroid problem

=====

Patient 120

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	136	162	82	38	40	72	116	152	94	124	180	200

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	146	138	106	84	118	64	144	200	88	106	172	200

Diagnosis:

Group #1: food related stomach irritation (spicy ,cheese)

Group #2: reflux

Group #3: nerve damage - neck

Group #6: post nasal drip

Rule Outs:

Group #4: thyroid problem

Group #5: slow duodenal peristalsis

Group #6: large bowel issues

Group #6: constipation

Group #7: esophageal obstruction

Group #7: coronary artery disease

Patient 121

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	106	70	54	106	136	44	158	94	64	136	124	80

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	106	52	194	136	68	162	72	40	132	178	90

Diagnosis:

Group #3: duodenal irritation

Group #4: microcirculatory -orthostatic hypotention related to
neck ,back injury

Group #5: nerve damage - neck

Group #6: back injury

Rule Outs:

Group #1: pituitary problem

Group #1: thyroid problem

Group #6: male

Group #6: prostate cancer

Group #6: bladder dysfunction

Group #7: shoulder pain

Group #8: large bowel issues

Group #9: infection bacterial

Patient 122

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	90	94	108	46	54	108	132	86	132	128	102	132

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	100	100	86	114	82	92	120	92	104	104	104	96

Diagnosis:

- 96 -

Group #1: neck irritation
 Group #1: back injury
 Group #2: stomach irritation
 Group #3: slow duodenal peristalsis

Rule Outs:

Group #1: thyroid problem

Patient 123

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	110	84	72	168	110	180	134	36	104	132	36	40

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	110	100	92	120	96	122	98	24	78	112	80	76

Diagnosis:

Group #1: low food intake
 Group #1: low protein intake
 Group #2: duodenal irritation
 Group #3: large intestinal irritation
 Group #4: back injury
 Group #5: large bowel issues
 Group #6: duodenal irritation

Rule Outs:

Group #4: coronary artery disease

Patient 124

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	158	88	114	166	196	174	120	94	108	118	100	102

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	184	146	150	150	176	198	146	100	130	132	130	134

Diagnosis:

Group #1: nerve damage - upper and lower back
 Group #1: nerve damage - neck
 Group #2: microcirculatory problem
 Group #3: low food intake
 Group #3: low protein intake
 Group #3: weight loss
 Group #3: post nasal drip

Rule Outs:

Group #1: bladder dysfunction
 Group #2: coronary artery disease

- 97 -

Patient 125

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	118	106	108	26	32	40	36	94	54	26	12	142

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	108	84	90	24	82	182	56	64	76	38	56	68

Diagnosis:

Group #1: nerve damage - lower back

Group #1: nerve damage - neck

Group #2: stomach irritation

Group #3: large bowel issues

Group #3: large intestinal irritation

Group #4: depression

Group #5: sinus allergy

Group #5: post nasal drip

=====

Patient 126

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	98	70	84	68	110	130	108	108	36	36	76	60

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	88	76	54	114	90	118	102	106	64	60	94	88

Diagnosis:

Group #1: nerve damage - lower back

Group #1: nerve damage - neck

Group #3: thyroid problem

Rule Outs:

Group #2: large intestinal irritation

Group #2: autoimmune disease

Group #4: bladder dysfunction

=====

Patient 127

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	196	190	178	114	186	148	82	120	84	100	88	70

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	200	150	180	180	176	164	112	70	80	136	106	88

Diagnosis:

Group #2: post nasal drip

Group #3: weight loss

- Group #3: low food intake
- Group #3: low protein intake
- Group #4: hyperthyroid
- Group #5: nerve damage - upper and lower back
- Group #5: nerve damage - neck

Rule Outs:

Group #1: stress
Group #2: lung cancer
Group #2: lung disease
Group #4: hyperthyroid
Group #5: MS
Group #5: bladder dysfunction

Patient	128	Measurements:
---------	-----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	128	72	112	62	50	78	80	58	72	110	8	58

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	104	76	64	82	70	54	98	92	84	82	36	78

Diagnosis:

- Group #1: post nasal drip
- Group #1: allergy
- Group #2: depression
- Group #3: low back irritation
- Group #4: gallbladder dysfunction
- Group #4: gallbladder problem
- Group #6: constipation

Rule Outs:

Group #5: thyroid problem

Patient	129	Measurements:
---------	-----	---------------

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	92	24	20	24	78	142	48	38	50	38	178	198

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	148	52	78	78	50	146	92	168	152	50	200	200

Diagnosis:

Group #1: microcirculatory -orthostatic hypotention related to neck ,back injury
Group #1: microcirculatory problem
Group #2: nerve damage
Group #2: nerve damage - lower back

- 99 -

Group #2: nerve damage - neck
 Group #2: neck irritation
 Group #3: bladder dysfunction
 Group #5: shoulder pain
 Group #6: reflux
 Group #6: stomach irritation
 Group #7: food related stomach irritation (spicy ,cheese)
 Group #8: sinus allergy
 Group #8: post nasal drip

Rule Outs:

Group #2: MS

Patient 130

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	162	102	126	90	82	114	64	88	122	92	126	114

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	192	88	96	96	96	128	200	64	116	96	154	148

Diagnosis:

Group #3: lower back injury
 Group #4: lower back pain

Rule Outs:

Group #1: coronary artery disease
 Group #2: lung cancer
 Group #2: lung disease

Symptoms:

Group #2: post nasal drip
 Group #4: lower back pain
 Group #4: lower back injury

Patient 131

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	78	70	36	146	106	150	74	110	70	170	58	168

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	96	52	54	122	40	116	66	68	78	96	92	188

Diagnosis:

Group #3: nerve damage - neck
 Group #3: neck injury
 Group #4: lower back injury
 Group #4: lower back pain
 Group #5: microcirculatory-orthostatic hypotension

- 100 -

Group #6: stomach irritation

Group #7: duodenal irritation

Rule Outs:

Group #2: coronary artery disease

Symptoms:

Group #1: low blood pressure

Patient 132

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	54	20	30	90	62	122	48	42	14	32	42	66

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	48	20	24	40	70	50	36	62	26	22	84	58

Diagnosis:

Group #1: neurodeficiency due to neck injury

Group #1: orthostatic hypotention

Group #1: migraines

Group #4: shoulder pain

Group #5: nerve damage - neck

Group #6: duodenal irritation

Rule Outs:

Group #2: coronary artery disease

Group #3: constipation

Patient 133

Measurements:

Left:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	120	132	122	30	126	120	136	142	118	148	122	110

Right:	LU	PC	HT	SI	TH	LI	SP	LR	KI	BL	GB	ST
	140	122	106	74	102	82	128	96	82	128	126	120

Diagnosis:

Group #1: lower back injury

Group #1: lower back pain

Group #2: nerve damage - neck

Group #3: bladder dysfunction

Variations

This invention may be implemented in many different ways.
Here are some non-limiting examples:

5 In some implementations, this invention is a method

comprising: (a) taking, in a diagnostic session, a set of measurements of electric current that flow between a ground electrode and a probe electrode through a patient's body, the measurements being taken in such a way that (i) different measurements in the set are taken while the probe electrode touches skin of the patient at different Prototype Measurement Locations, one location at a time, and (ii) each of the respective measurements in the set is taken while (A) the ground electrode touches skin of a hand of a forearm of the patient, and (B) the probe electrode touches skin of another limb of the patient at one of the Prototype Measurement Locations; (b) calculating, based on the set of measurements, a Prototype Electrical Current State for the diagnostic session; (c) employing a lookup table to identify a medical condition that the lookup table Associates with the Prototype Electrical Current State, which medical condition is a Prototype Medical Condition; and (d) outputting (i) a diagnosis that the patient has the medical condition, or (ii) a recommendation that the patient undergo medical testing to evaluate whether the patient has the medical condition. In some cases, the Prototype Medical Condition is a Class B Condition. In some cases, the Prototype Medical Condition is a Class M Condition. In some cases, the Prototype Medical Condition is a Class N Condition. In some cases, the Prototype Medical Condition is a Class P Condition. In some cases, the Prototype Medical Condition is a Class A Condition. In some cases, the Prototype Medical Condition is a Class C Condition. In some cases, the Prototype Medical Condition is a viral infection. In some cases, the Prototype Medical Condition is a bacterial infection. In some cases, the Prototype Medical Condition is a Class D Condition. Each of the cases described above in this paragraph is an example of the method described in the first sentence of this paragraph, and is also an example of an embodiment of this invention that may be combined with other embodiments of this invention.

In some implementations, this invention is a method comprising: (a) calculating a Prototype Electrical Current State for a diagnostic session, based on a set of measurements of electric current in a patient; (b) employing a lookup table to identify a medical condition that the lookup table Associates with the Prototype Electrical Current State, which medical condition is a Prototype Medical Condition; and (c) outputting (i) a diagnosis that the patient has the medical condition, or (ii) a recommendation that the patient undergo medical testing to evaluate whether the patient has the medical condition. In

some cases, different measurements in the set were taken while: (a) the probe electrode touched skin of the patient at different Prototype Measurement Locations, one location at a time; and (b) the electric current flowed between a ground electrode and a probe electrode through the patient's body. In some cases, each of the respective measurements in the set was taken while: (a) the electric current flowed between a ground electrode and a probe electrode through the patient's body; (b) the ground electrode touched skin of a hand of a forearm of the patient; and (c) the probe electrode touched skin of another limb of the patient at a Prototype Measurement Location. In some cases, the Prototype Medical Condition is a Class B Condition, Class M Condition, Class N Condition or Class P Condition. Each of the cases described above in this paragraph is an example of the method described in the first sentence of this paragraph, and is also an example of an embodiment of this invention that may be combined with other embodiments of this invention.

In some implementations, this invention is a system comprising: (a) a current sensor that includes a ground electrode and a probe electrode; and (b) one or more computers; wherein (i) the current sensor is configured to take, during a diagnostic session, a set of measurements of electric current, in such a way that (A) the electric current being measured flows between the ground electrode and the probe electrode through a patient's body, (B) different measurements in the set are taken while the probe electrode touches skin of the patient at different Prototype Measurement Locations, one location at a time, and (C) each of the respective measurements in the set is taken while (I) the ground electrode touches skin of a hand of a forearm of the patient, and (II) the probe electrode touches skin of another limb of the patient at one of the Prototype Measurement Locations, and (ii) the one or more computers are programmed (A) to calculate, based on the set of measurements, a Prototype Electrical Current State for the diagnostic session, (B) to employ a lookup table to identify a medical condition that the lookup table Associates with the Prototype Electrical Current State, which medical condition is a Prototype Medical Condition, and (C) to output (I) a diagnosis that the patient has the medical condition, or (II) a recommendation that the patient undergo medical testing to evaluate whether the patient has the medical condition. In some cases, the ground electrode and the probe electrode are parts of a single rigid structure and are in a fixed position relative to each other. In some

cases: (a) the system further comprises one or more pressure sensors that are each configured to measure pressure exerted on the ground electrode or the probe electrode; and (b) the ground electrode and the probe electrode are in fixed positions relative to each other, except
5 for any movement due to displacement that occurs within the one or more pressure sensors. In some cases: (a) the system further comprises an electronic display screen and an audio transducer; and (b) the one or more computers are programmed to cause the screen and the audio transducer to together output an audiovisual presentation that provides
10 information about whether the ground and probe electrodes are positioned correctly on the patient. In some cases: (a) the ground electrode and the probe electrode are parts of a single rigid structure and are in a fixed position relative to each other; and (b) the rigid structure is configured to partially surround a smartphone or other mobile computing
15 device. In some cases, the Prototype Medical Condition is a Class B Condition, Class M Condition, Class N Condition or Class P Condition. Each of the cases described above in this paragraph is an example of the system described in the first sentence of this paragraph, and is also an example of an embodiment of this invention that may be combined
20 with other embodiments of this invention.

Each description herein (or in the Provisional) of any method, apparatus or system of this invention describes a non-limiting example of this invention. This invention is not limited to those examples, and may be implemented in other ways.

25 Each description herein (or in the Provisional) of any prototype of this invention describes a non-limiting example of this invention. This invention is not limited to those examples, and may be implemented in other ways.

30 Each description herein (or in the Provisional) of any implementation, embodiment or case of this invention (or any use scenario for this invention) describes a non-limiting example of this invention. This invention is not limited to those examples, and may be implemented in other ways.

35 Each Figure, diagram, schematic or drawing herein (or in the Provisional) that illustrates any feature of this invention shows a non-limiting example of this invention. This invention is not limited to those examples, and may be implemented in other ways.

The above description (including without limitation any attached drawings and figures) describes illustrative implementations

of the invention. However, the invention may be implemented in other ways. The methods and apparatus which are described herein are merely illustrative applications of the principles of the invention. Other arrangements, methods, modifications, and substitutions by one of
5 ordinary skill in the art are also within the scope of the present invention. Numerous modifications may be made by those skilled in the art without departing from the scope of the invention. Also, this invention includes without limitation each combination and permutation of one or more of the items (including any hardware, hardware components,
10 methods, processes, steps, software, algorithms, features, and technology) that are described herein.

Non-Human Animals

The embodiments of the invention as described above may also be employed with respect to the "cross-body" electrical currents of non-
15 human animals (i.e. dog, cat, horse, cows etc.), especially mammals (including but not limited to hominids, canines, bovines, equines, porcines, ovines, felines, hercines, giraffines, cervines, musines, and elephantines). Preferably, measurement methodology for no-human mammals is substantially the same as with human patients described above, that
20 is measurements are taken of cross-currents that flow through the animal torso between animal limbs along acupuncture meridians.

For example, measurement data is preferably taken while by probing each animal leg, with 6 locations of probing on each leg, as shown in Figures 14A-D with reference to examples of dogs, cats, horses
25 and cows. Locations 1701-1706 are associated with the animal's back legs and locations 1801-1806 are associated with the animal's front legs.

Specifically, locations 1701-1706 are positioned on the Spleen, Liver, Kidney, Bladder, Gall Bladder, and Stomach acupuncture meridians, respectively. In acupuncture terminology: (a) location 1701
30 is sometimes called SP3 or Spleen 3; (b) location 1702 is sometimes called LR3 or Liver 3; (c) location 1703 is sometimes called KI4 or Kidney 4; (d) location 1704 is sometimes called BL65 or Bladder 65; (e) location 1705 is sometimes called GB40 or Gall Bladder 40; and (f) location 1706 is sometimes called ST42 or Stomach 42. Locations 1801-
35 1806 are positioned on the Lung, Pericardium, Heart, Small Intestine, Triple Heater and Large Intestine acupuncture meridians, respectively. In acupuncture terminology: (a) location 1801 is sometimes called LU9 or Lung 9; (b) location 1802 is sometimes called PC7 or Pericardium 7; (c) location 1803 is sometimes called HT7 or Heart 7; (d) location 1804

- 105 -

is sometimes called SI5 or Small Intestine 5; (e) location 1805 is sometimes called TH4 or Triple Heater 4; and (f) location 1806 is sometimes called LI5 or Large Intestine 5.

5 These locations 1701-1706, 1801-1806 may be determined by known acupuncture meridian charts of the animal species or may be determined and/or varied on a case-by-case basis by the health-care worker. Locations 1701-1706, 1801-1806 may vary by animal species and even in individual animals within a species, thus determination of the locations 1701-1706, 1801-1806 should be left to a human diagnostician.
10 In some cases, the measurement locations may be placed on different acupuncture points than described or somewhere else on the animal that is not along any acupuncture points at all, based on diagnostician discretion. In addition, in some cases, less than 24 measurement locations are utilized during a single diagnostic session, which may
15 also be at diagnostician discretion.

As seen in Figs. 14A-D, three locations are preferably determined on both the inside and the outside of each animal limb. These determined locations may be positioned on the same acupuncture meridians - and have the same acupuncture point numbers - as the respective
20 corresponding locations on the opposite limb. For instance, Figure 14A depicts the example of a canine. Measurement locations 1801, 1802, and 1806 are generally located laterally on (the outside of) a canine front leg, here shown on the lateral surface of a canine front left leg. Measurement locations 1804-1805 are generally located medially on (the
25 inside of) a canine front leg, here shown on the medial surface of a canine front right leg. However, the measurement locations of the front legs preferably have substantial bilateral symmetry, thus measurement locations 1801, 1802, and 1806 may be determined for the canine front right leg and measurement locations 1803-1805 may be determined for the
30 canine front left leg as well in mirrored positions. Thus, each limb will preferably have 6 measurement locations 1701-1706 or 1801-1806 for the diagnostician to locate and/or determine and probe, and each animal will preferably have 24 probe locations total, as was described for human patients above.

35 In some embodiments and/or uses of the method according to the present invention, diagnostician may take measurements by holding the probe electrode 1101 (to apply about 200 microamps to about 500 microamps) and ground electrode 1103 against the fur and/or skin at various measurement locations of the non-human animal. In other

embodiments, the ground electrode 1103 and probe electrode 1101 may be configured to be attached to the body and/or limb of a non-human animal using a fastener, such as a strap.

During diagnostic sessions, the current sensor 122 takes
5 multiple measurements of electrical current when the probe 1101 is positioned to deliver diagnostic electrical current at each measurement location for a predetermined diagnostic duration, such as about three to about five seconds. Put differently, the current sensor may take multiple measurements of electrical current at each point on the animal's
10 skin and/or fur when the probe electrode is placed. Each of these current measurements may be calibrated based on simultaneous pressure measurement(s) that is/are indicative of pressure or force exerted against the probe electrode or ground electrode. The calibration may assist to or attempt to eliminate the impact of varying pressure or
15 force on the magnitude of the current readings and may be used to eliminate outlier measurements. Thus, for probe placement at each single measurement location, multiple calibrated, filtered current measurements may be taken. Then, measurements of electrical current may be taken, using the same method as described above for humans, and compared to
20 the lookup table Table 1 also described above for diagnosis.

Similarly to the human examples given above, the electric current used may be DC and/or AC current. Preferably, if a DC current is used, the DC current does not exceed 400 microamperes. Alternatively or additionally, AC currents may be employed that preferably range from
25 0.1 milliamperes to 400-500 milliamperes and up to a 100 hertz frequency. In cases where treatment via stimulation is sought, stimulation may be provided to an afflicted area in a preferred DC range of between 100-200 microamps. For larger animals, that preferred DC range may be increased to between 200-400 microamps in addition to, or alternatively
30 to, an increased exposure time to stimulation.

Stimulation to Alter Meridian Conductivity

Before, after, or without a diagnostic method as described above, an electrical stimulation dose may be applied by using systems described herein in an attempt to alter electrical conductivity along
35 identified meridians. Application of an electrical stimulation dose in a predetermined or variable amount and for a predetermined or variable time is understood to change the resistance along the meridian channels. Such dose is understood to change (e.g., improve) conductivity, and it improves blood circulation to affected bodily organs and organ systems

corresponding to those meridians. Further, a stimulation dose is understood to optimize tissue environments by improving microcirculation and affecting bodily structure at a cellular level.

Generally, a stimulation dose may be indicated by human or
5 other animal symptomatic presentation (e.g., ailments, complaints, responses to prompting questions related to pain or other symptoms) or indicated by use of a diagnostic method as herein described. Where a diagnostic method is utilized, electrical stimulation dose application locations may correspond to meridians having sensed currents that are a
10 predetermined level, such as outside of the average range, as described above. If a diagnostic measurement provides a sensed current that is below average, or way below average (i.e., "low"), then conductivity along the respective meridian may be indicated to be increased. Conversely, if a diagnostic measurement provides a sensed current that
15 is above average, or way above average (i.e., "high"), then conductivity along the respective meridian may be indicated to be decreased. As described above, there are 12 applicable meridian channels per lateral side of an animal body. Regarding dosing, there are preferably two points per channel that can be used for changing conductivity, one for
20 reducing conductivity and one for improving conductivity. Generally, preferred stimulation dosing points are as follows:

- Lung Channel (LU) (1): To increase conductivity, an electrical stimulation dose may be applied to point number LU-9; to decrease conductivity, an electrical stimulation
25 dose may be applied to point number LU-5.
- Pericardium (PC) Channel (2): To increase conductivity, an electrical stimulation dose may be applied to point number PC-9; to decrease conductivity, an electrical stimulation dose may be applied to point number PC-7.
- 30 • Heart Channel (HT) (3): To increase conductivity, an electrical stimulation dose may be applied to point number HT-9; to decrease conductivity, an electrical stimulation dose may be applied to point number HT-7.
- Large Intestinal Channel (LI) (4): To increase conductivity,
35 an electrical stimulation dose may be applied to point number LI-11; to decrease conductivity, an electrical stimulation dose may be applied to point number LI-2.
- Triple Heater (TH) (or triple energizer) Channel (5): To

- 108 -

increase conductivity, an electrical stimulation dose may be applied to point number TH-2; to decrease conductivity, an electrical stimulation dose may be applied to point number TH-10.

- 5 • Small Intestinal Channel (SI) (6): To increase conductivity, an electrical stimulation dose may be applied to point number SI-2; to decrease conductivity, an electrical stimulation dose may be applied to point number SI-8.
- 10 • Spleen (SP) Channel (7): To increase conductivity, an electrical stimulation dose may be applied to point number SP-3; to decrease conductivity, an electrical stimulation dose may be applied to point number SP-5.
- 15 • Liver Channel (LR) (8): To increase conductivity, an electrical stimulation dose may be applied to point number LR-8; to decrease conductivity, an electrical stimulation dose may be applied to point number LR-2.
- 20 • Bladder Channel (BL) (9): To increase conductivity, an electrical stimulation dose may be applied to point number BL-67; to decrease conductivity, an electrical stimulation dose may be applied to point number BL-66.
- 25 • Kidney Channel (KI) (10): To increase conductivity, an electrical stimulation dose may be applied to point number KI-7; to decrease conductivity, an electrical stimulation dose may be applied to point number KI-1.
- 30 • Gallbladder Channel (GB) (11): To increase conductivity, an electrical stimulation dose may be applied to point number GB-43; to decrease conductivity, an electrical stimulation dose may be applied to point number GB-39.
- Stomach Channel (ST) (12): To increase conductivity, an electrical stimulation dose may be applied to point number ST-45; to decrease conductivity, an electrical stimulation dose may be applied to point number ST-44.

35 Meridian point locations on a particular animal body are known and documented, but heretofore have been underappreciated.

Dosing is preferably provided with electrical current of a predetermined or variable level, preferably up to or about 200 microamperes if a direct current (DC) is utilized, if being applied to

a human or small (under 250 pounds) animal. If a larger animal is dosed (or if the animal has significant amounts of fur or hair, or an unusually thick or tough skin), a preferred dosing current level may be greater than 200 microamperes and up to about 400 microamperes, if a direct current (DC) is utilized.

Electrical stimulation dosing is also preferably provided for a predetermined or variable duration. A preferred stimulation dosing duration is between about 5 seconds to about 15 seconds, with at least seven seconds being most preferred. That said, it periodic, repetitive and/or episodic dosing is contemplated.

A diagnostic method may be performed, and then, without removing the probe from the body, a stimulation dosing method may be performed. For instance, a stimulation dose may be provided at the same or different current level to a particular point to which a diagnostic stimulation was previously provided. Additionally or alternatively, a diagnostic method may be performed, then an electrical stimulation dose may be applied, and then another diagnostic method may be performed, all without removing the probe from the body.

The foregoing is considered as illustrative only of the principles of the invention. Furthermore, because numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described. While the preferred embodiment has been described, the details may be changed without departing from the invention.

What is claimed is:

1. A method comprising:

(a) taking, in a diagnostic session, a set of measurements of electric current that flow between a ground electrode and a probe electrode through a non-human animal body, the measurements being taken in such a way that:

(i) different measurements in the set are taken while the probe electrode touches the non-human animal at different Prototype Measurement Locations, one location at a time, and

(ii) each of the respective measurements in the set is taken while:

(A) the ground electrode touches the non-human animal, and

(B) the probe electrode touches a different area of the non-human animal at one of the Prototype Measurement Locations;

(b) calculating, based on the set of measurements, a Prototype Electrical Current State for the diagnostic session;

(c) employing a lookup table to identify a medical condition that the lookup table associates with the Prototype Electrical Current State, wherein the medical condition is a Prototype Medical Condition; and

(d) outputting:

(i) a diagnosis that the non-human animal has the medical condition, or

(ii) a recommendation that the non-human animal undergo medical testing to evaluate whether the non-human animal has the medical condition.

2. The method of claim 1, wherein the Prototype Medical Condition is a Class B Condition.

3. The method of claim 1, wherein the Prototype Medical Condition is a Class M Condition.

4. The method of claim 1, wherein the Prototype Medical Condition is a Class N Condition.

5. The method of claim 1, wherein the Prototype Medical Condition is a Class P Condition.

6. The method of claim 1, wherein the Prototype Medical Condition is a Class A Condition.

7. The method of claim 1, wherein the Prototype Medical

- 111 -

Condition is a Class C Condition.

8. The method of claim 1, wherein the Prototype Medical Condition is a viral infection.

9. The method of claim 1, wherein the Prototype Medical
5 Condition is a bacterial infection.

10. The method of claim 1, wherein the Prototype Medical Condition is a Class D Condition.

11. A method comprising:

(a) calculating a Prototype Electrical Current State for a
10 diagnostic session, based on a set of measurements of electric current in a non-human animal;

(b) employing a lookup table to identify a medical condition that the lookup table associates with the Prototype Electrical Current State, wherein the medical condition is a Prototype
15 Medical Condition; and

(c) outputting

(i) a diagnosis that the non-human animal has the medical condition, or

(ii) a recommendation that the non-human animal
20 undergo medical testing to evaluate whether the non-human animal has the medical condition.

12. The method of claim 11 wherein different measurements in the set were taken while:

a probe electrode touched skin of the non-human animal at
25 different Prototype Measurement Locations, one location at a time; and the electric current flowed between a ground electrode and the probe electrode through the non-human animal body.

13. The method of claim 11, wherein each of the respective measurements in the set was taken while:

30 the electric current flowed between a ground electrode and a probe electrode through the non-human animal's body;

the ground electrode touched skin of a non-human animal;

and

35 the probe electrode touched a different portion of skin of the non-human animal at a Prototype Measurement Location.

14. The method of claim 11, wherein the Prototype Medical Condition is a Class B Condition, Class M Condition, Class N Condition or Class P Condition.

15. A system comprising:

- 112 -

(a) a current sensor that includes a ground electrode and a probe electrode; and

(b) one or more computers, wherein

5 (i) the current sensor is configured to take, during a diagnostic session, a set of measurements of electric current, in such a way that

 (A) the electric current being measured flows between the ground electrode and the probe electrode through a non-human animal body,

10 (B) different measurements in the set are taken while the probe electrode touches skin of the non-human animal at different Prototype Measurement Locations, one location at a time, and

15 (C) each of the respective measurements in the set is taken while

 (I) the ground electrode touches skin of the non-human animal, and

20 (II) the probe electrode touches skin at one of the Prototype Measurement Locations of the non-human animal, and

(ii) the one or more computers are programmed to:

 (A) calculate, based on the set of measurements, a Prototype Electrical Current State for the diagnostic session,

25 (B) employ a lookup table to identify a medical condition that the lookup table associates with the Prototype Electrical Current State, wherein the medical condition is a Prototype Medical Condition, and

 (C) output

30 (I) a diagnosis that the non-human animal has the medical condition, or

 (II) a recommendation that the non-human animal undergo medical testing to evaluate whether the non-human animal has the medical condition.

35 16. The system of claim 15, wherein the ground electrode and the probe electrode are parts of a single rigid structure and are in a fixed position relative to each other.

17. The system of claim 15, further comprising:

one or more pressure sensors that are each configured to

- 113 -

measure pressure exerted on the ground electrode or the probe electrode,
wherein the ground electrode and the probe electrode are in
fixed positions relative to each other, except for any movement due to
displacement that occurs within the one or more pressure sensors.

5 18. The system of claim 15, further comprising:

an electronic display screen and an audio transducer,

wherein the one or more computers are programmed to cause the
screen and the audio transducer to together output an audiovisual
presentation that provides information about whether the ground and
10 probe electrodes are positioned correctly on the non-human animal.

19. The system of claim 15, wherein the ground electrode
and the probe electrode are parts of a single rigid structure and are
in a fixed position relative to each other, and

15 the rigid structure is configured to partially surround a
smartphone or other mobile computing device.

20. The system of claim 15, wherein the Prototype Medical
Condition is a Class B Condition, Class M Condition, Class N Condition
or Class P Condition.

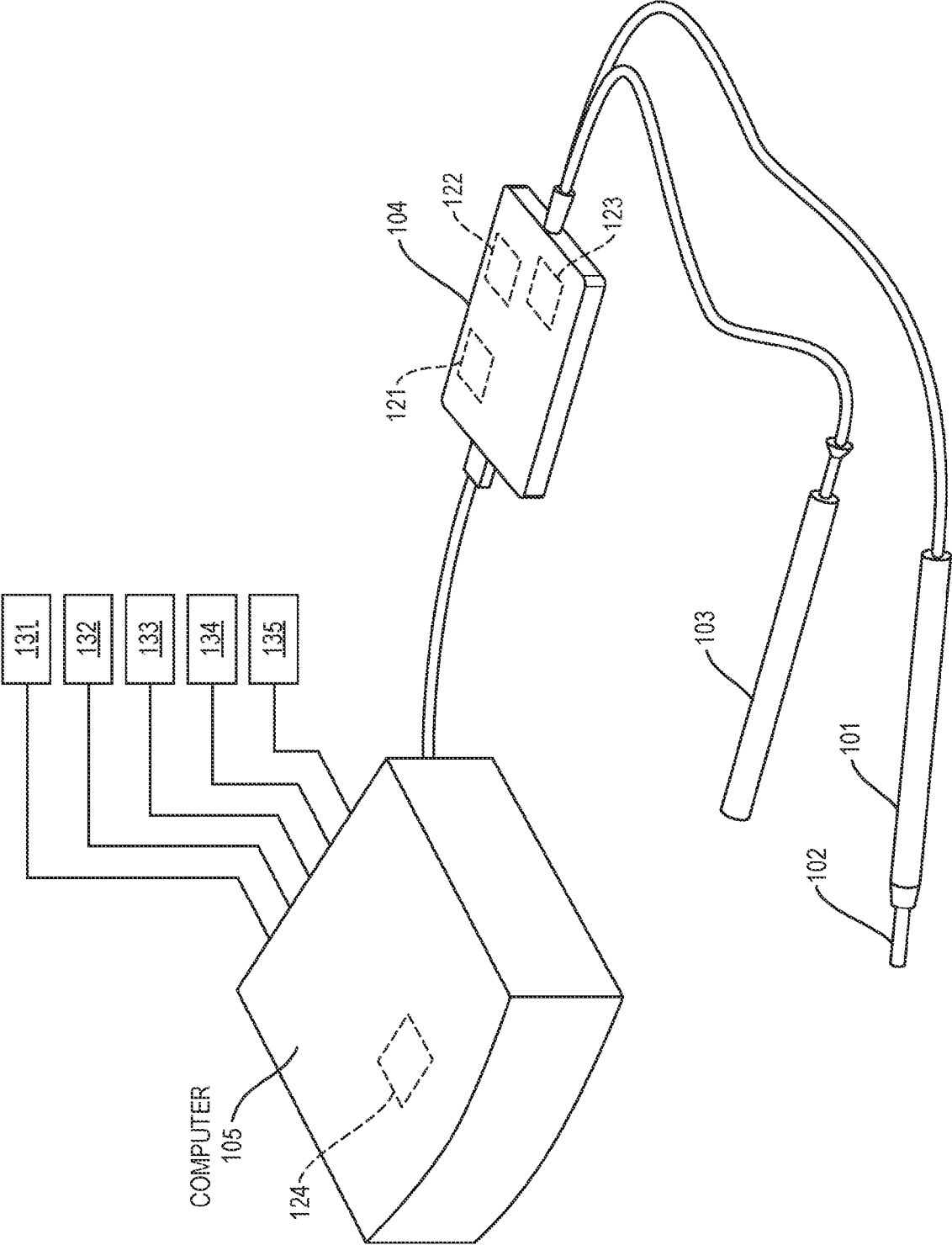
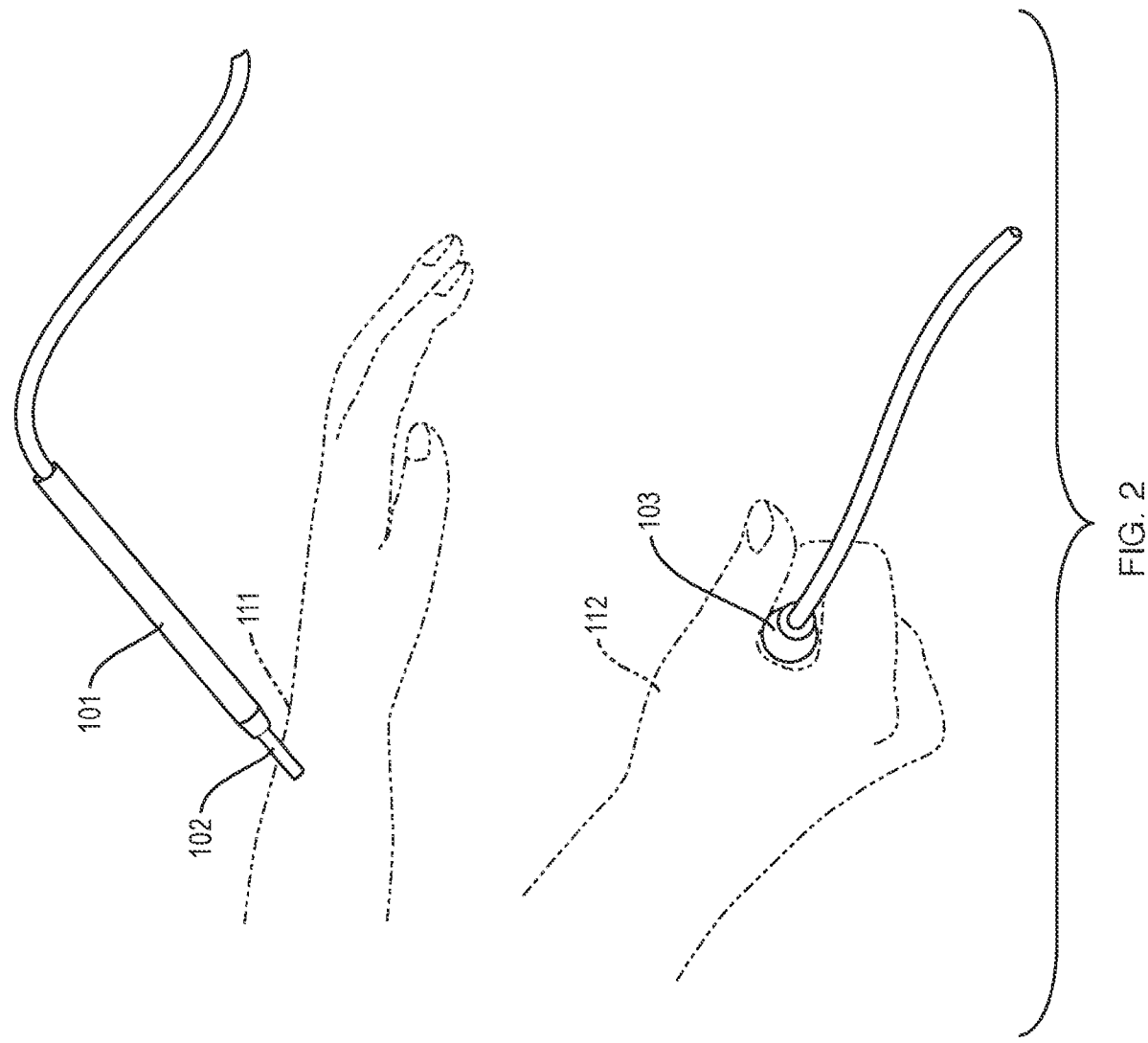


FIG. 1



3/13

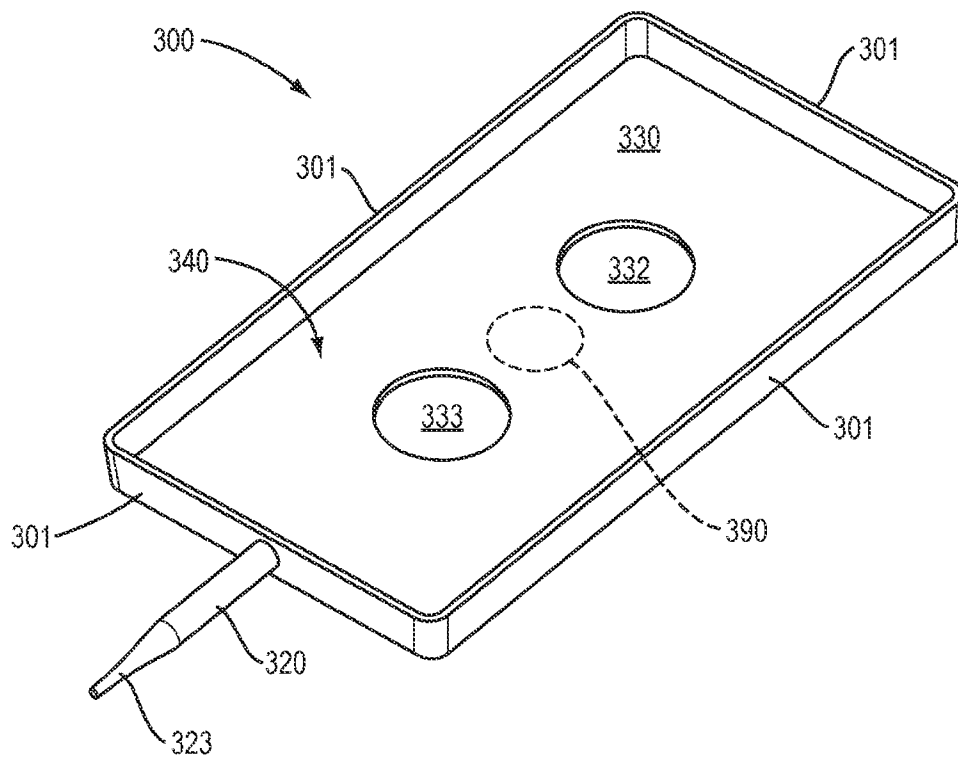


FIG. 3

4/13

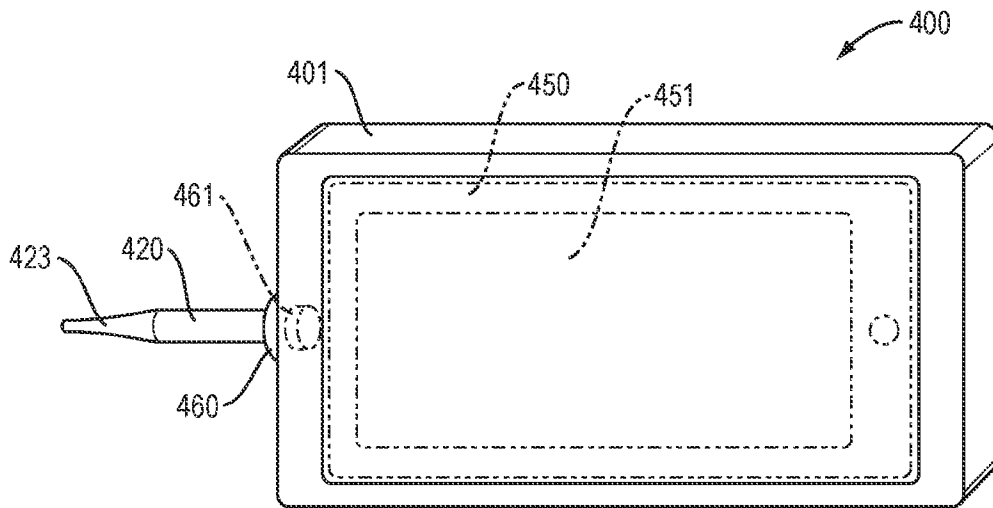


FIG. 4

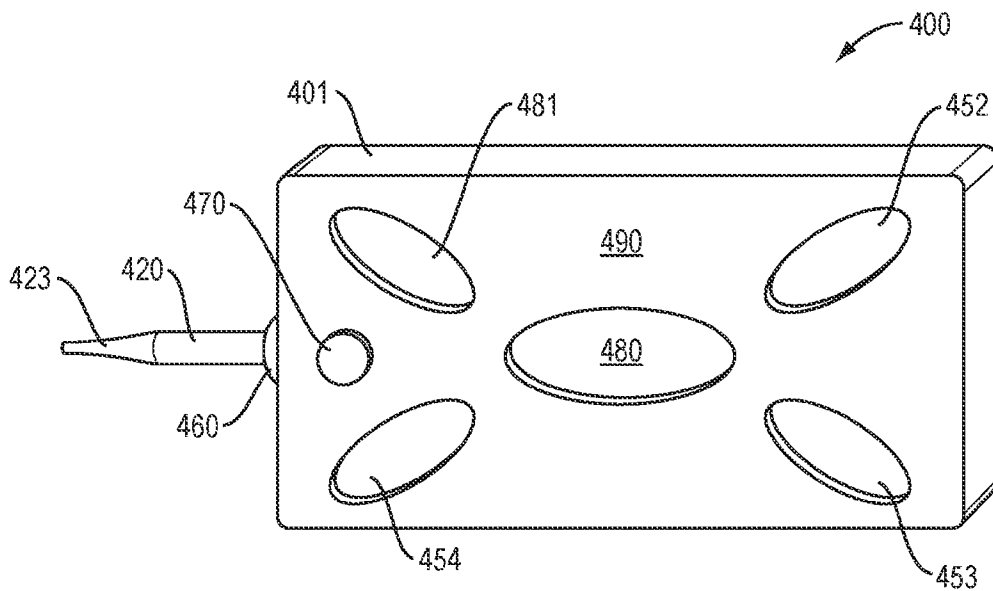


FIG. 5

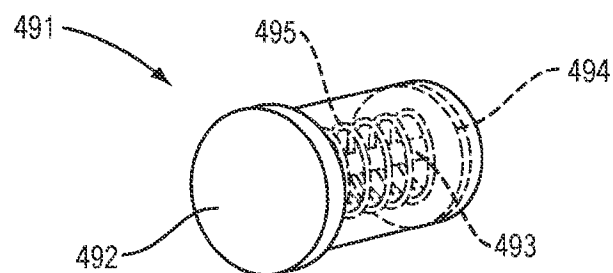


FIG. 6

5/13

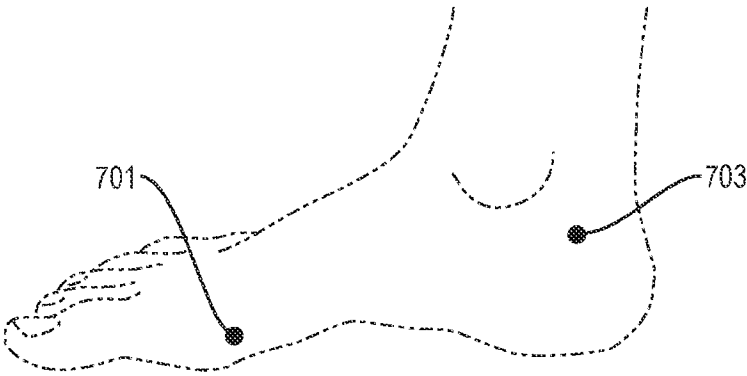


FIG. 7

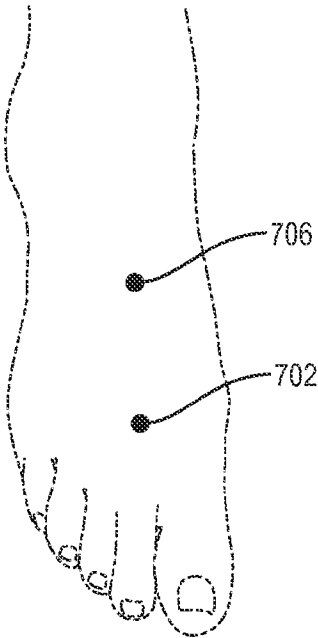


FIG. 8

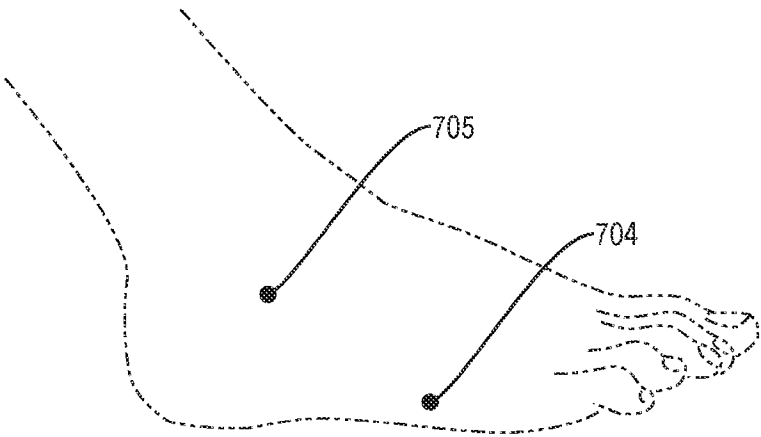


FIG. 9

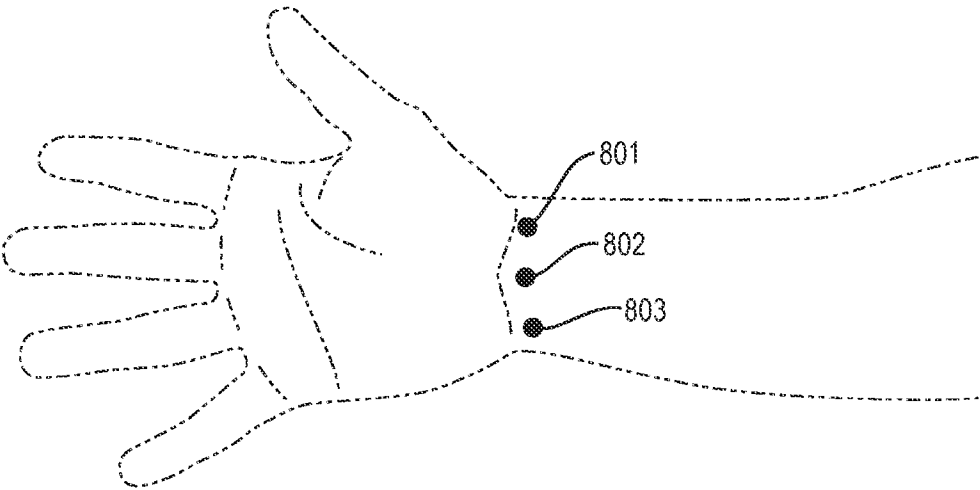


FIG. 10A

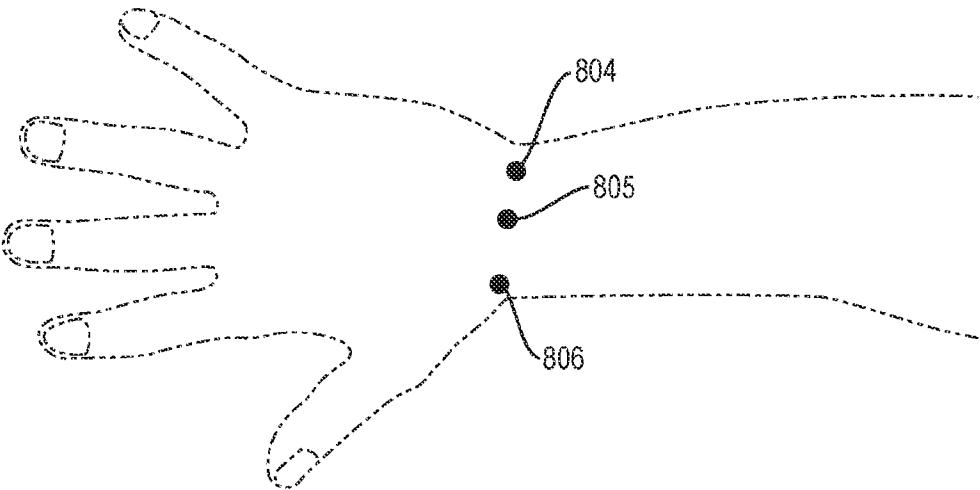


FIG. 10B

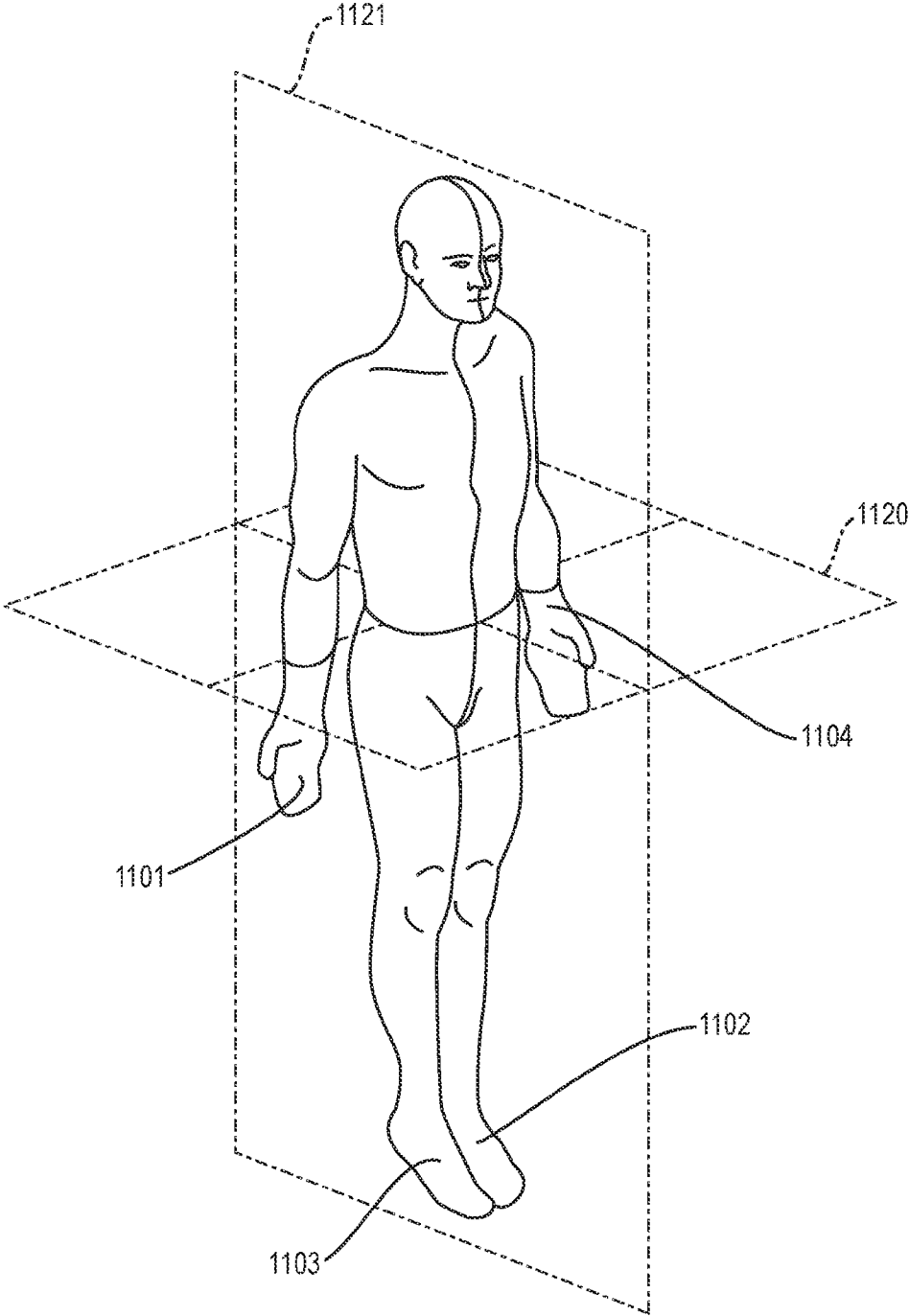


FIG. 11

8/13

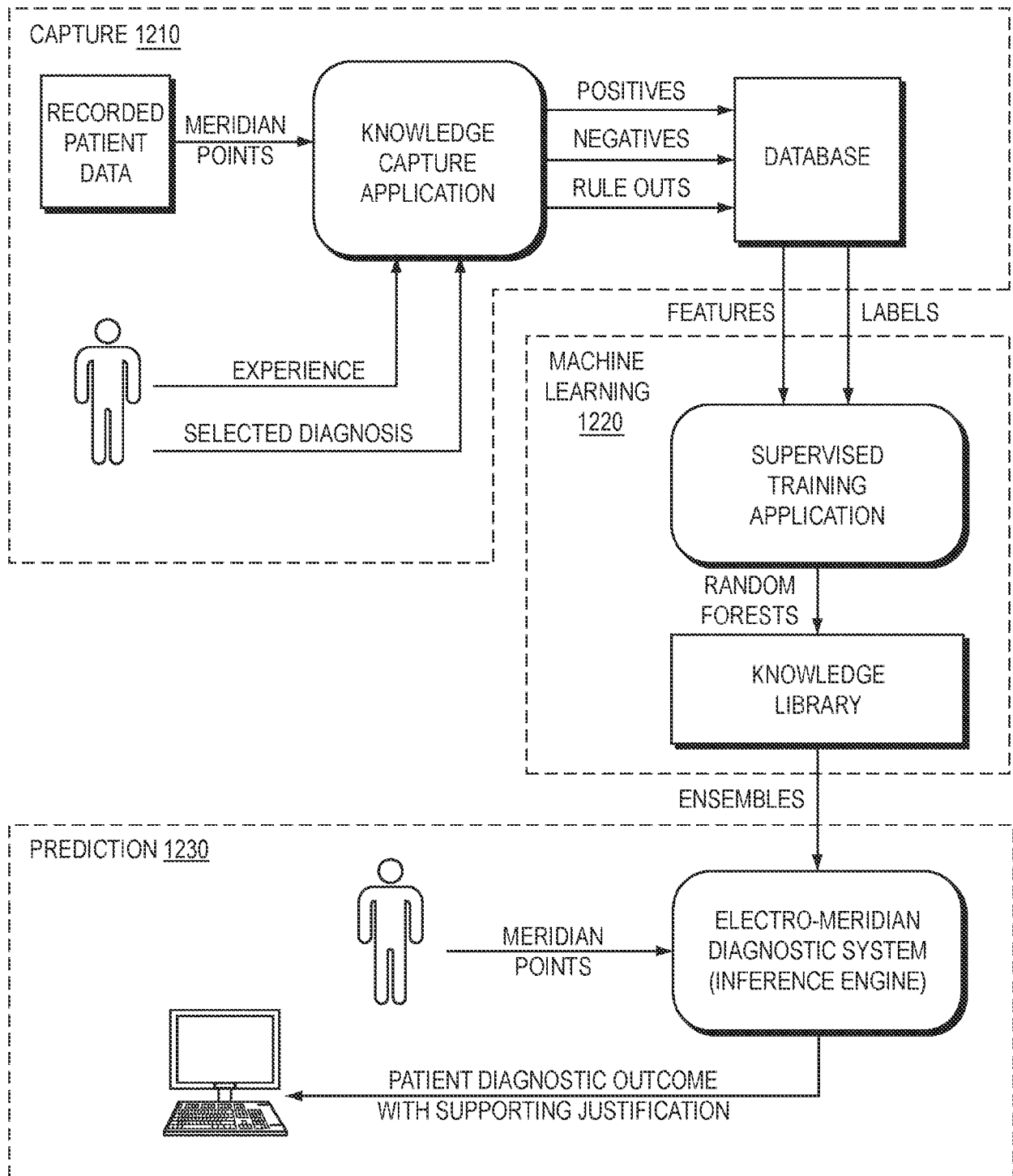


FIG. 12

9/13

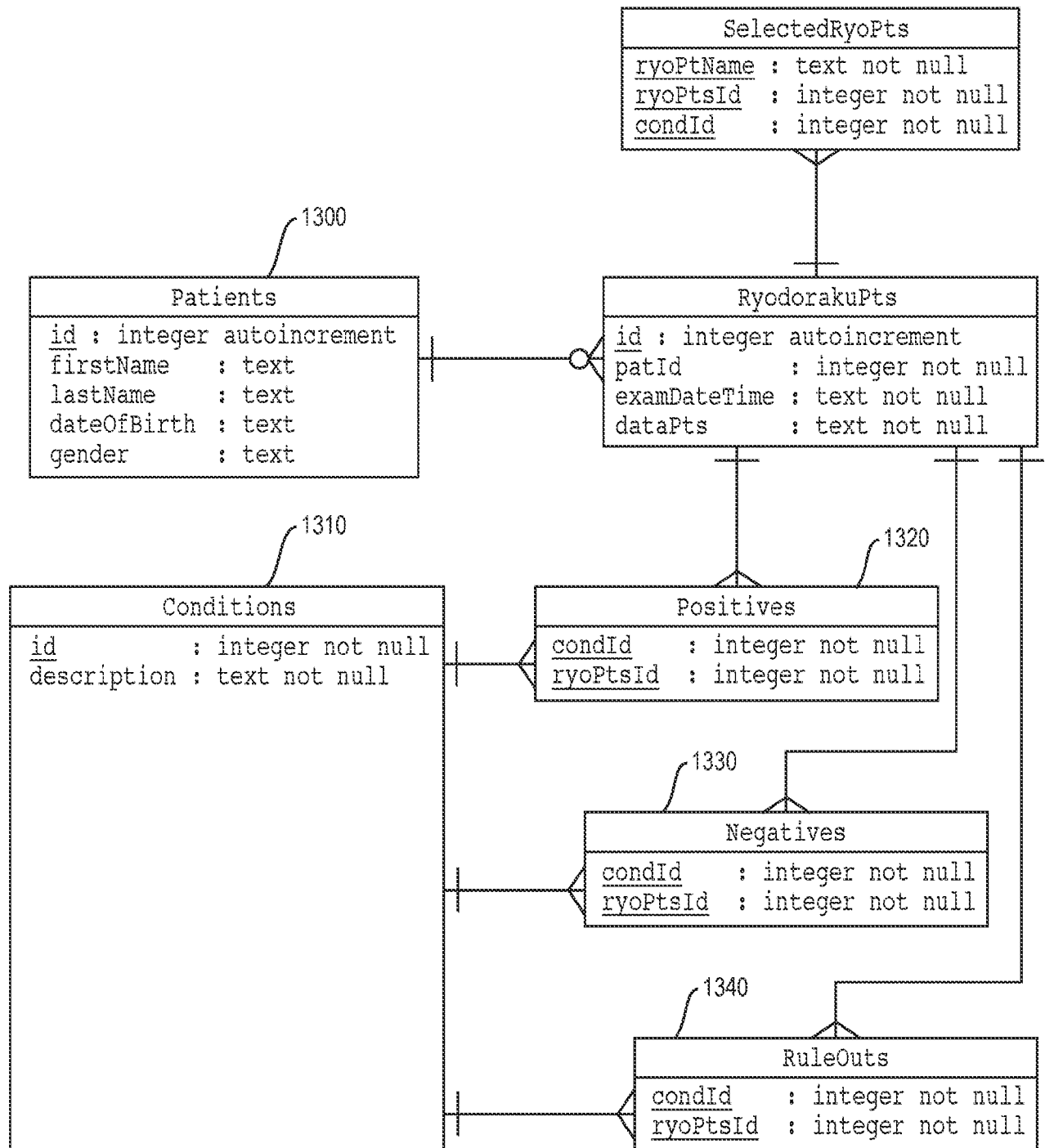


FIG. 13

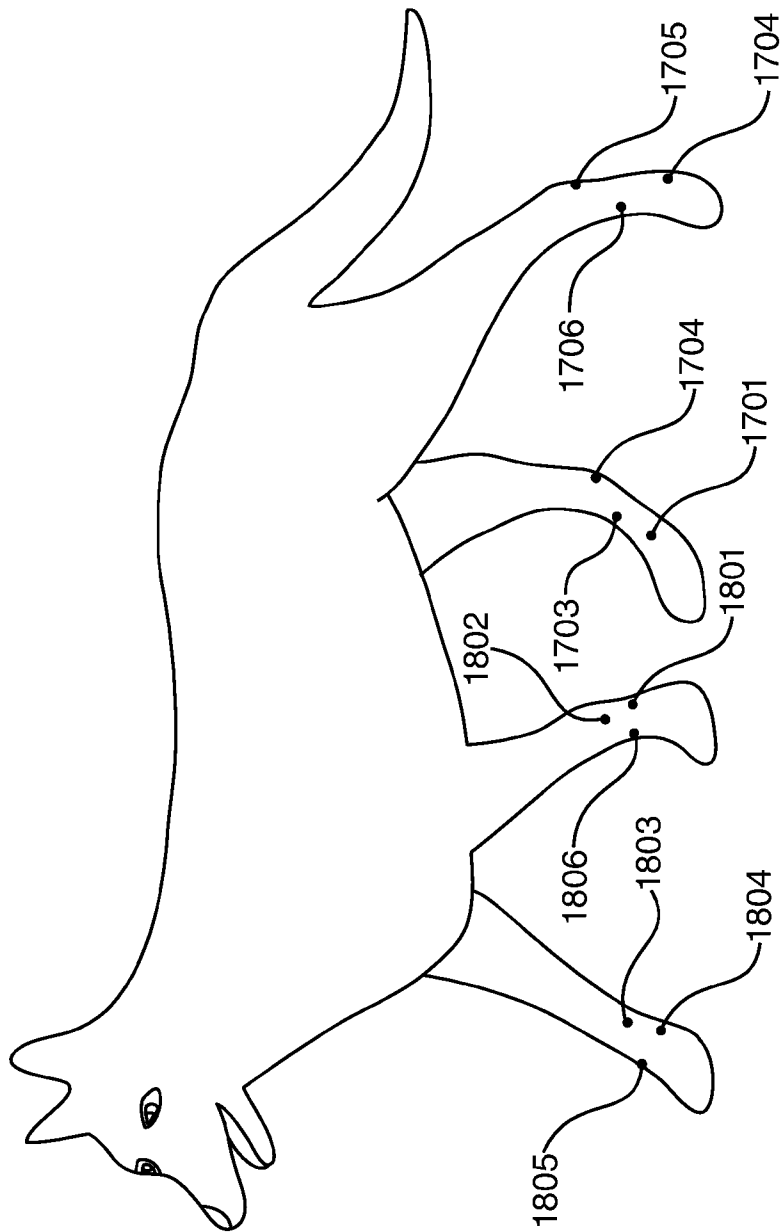


Fig.14A

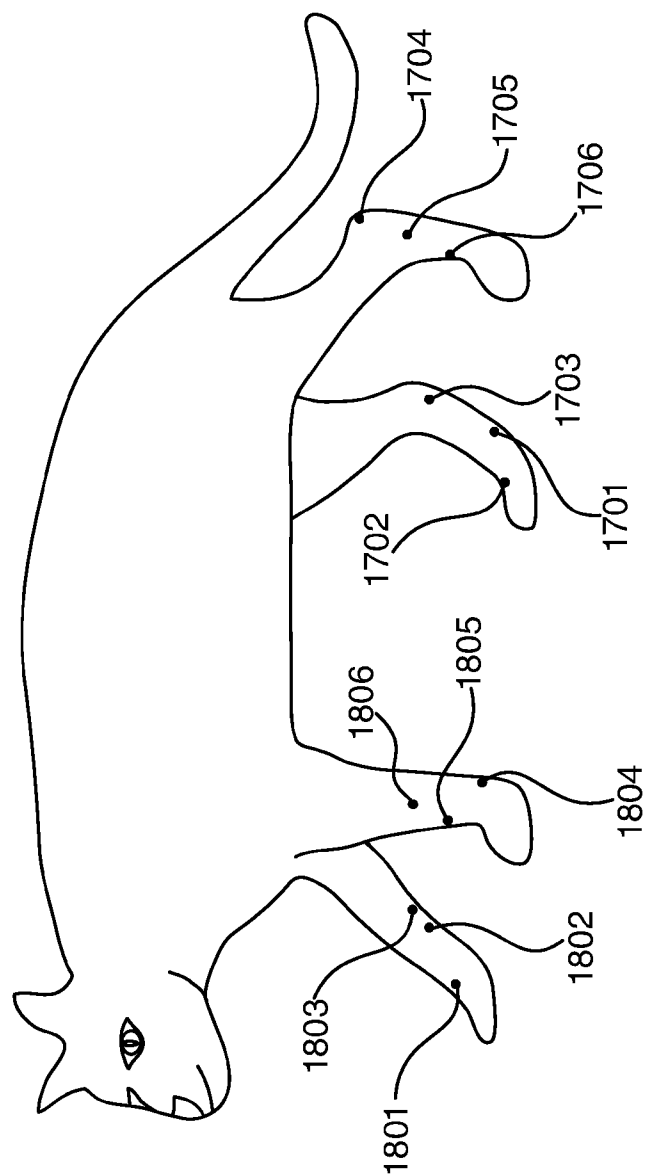


Fig.14B

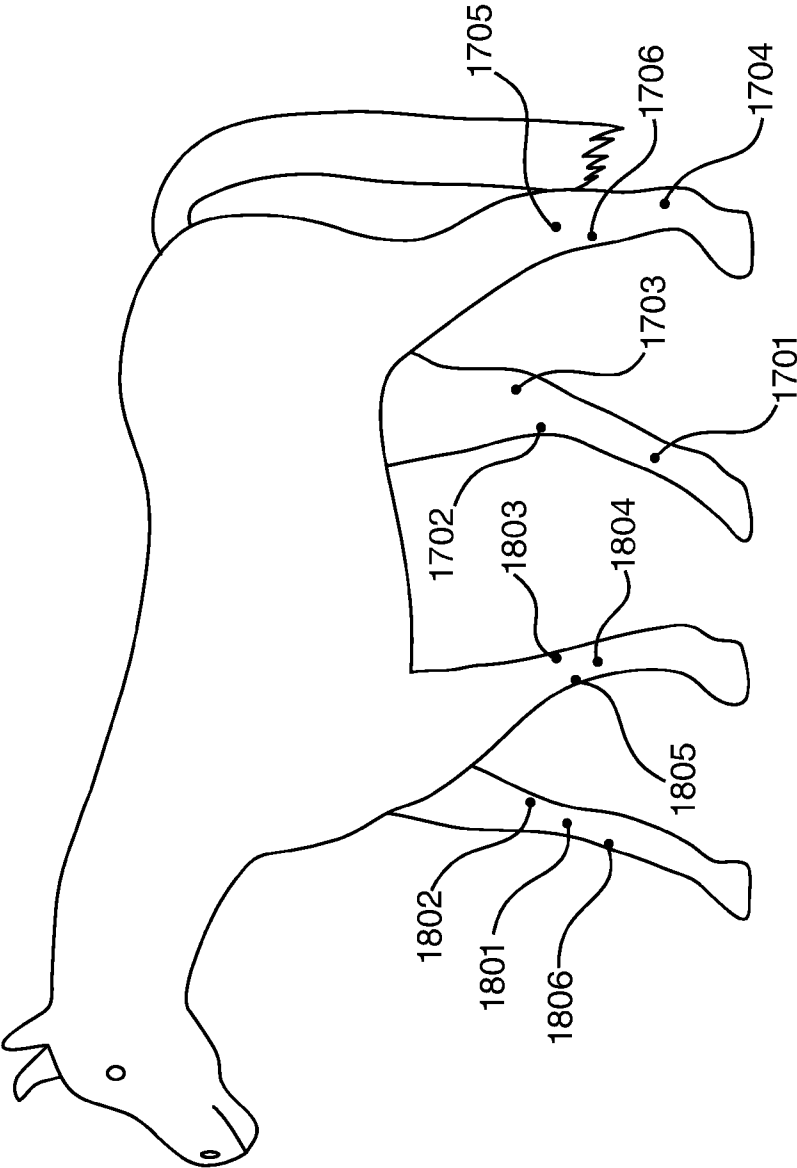


Fig.14C

13/13

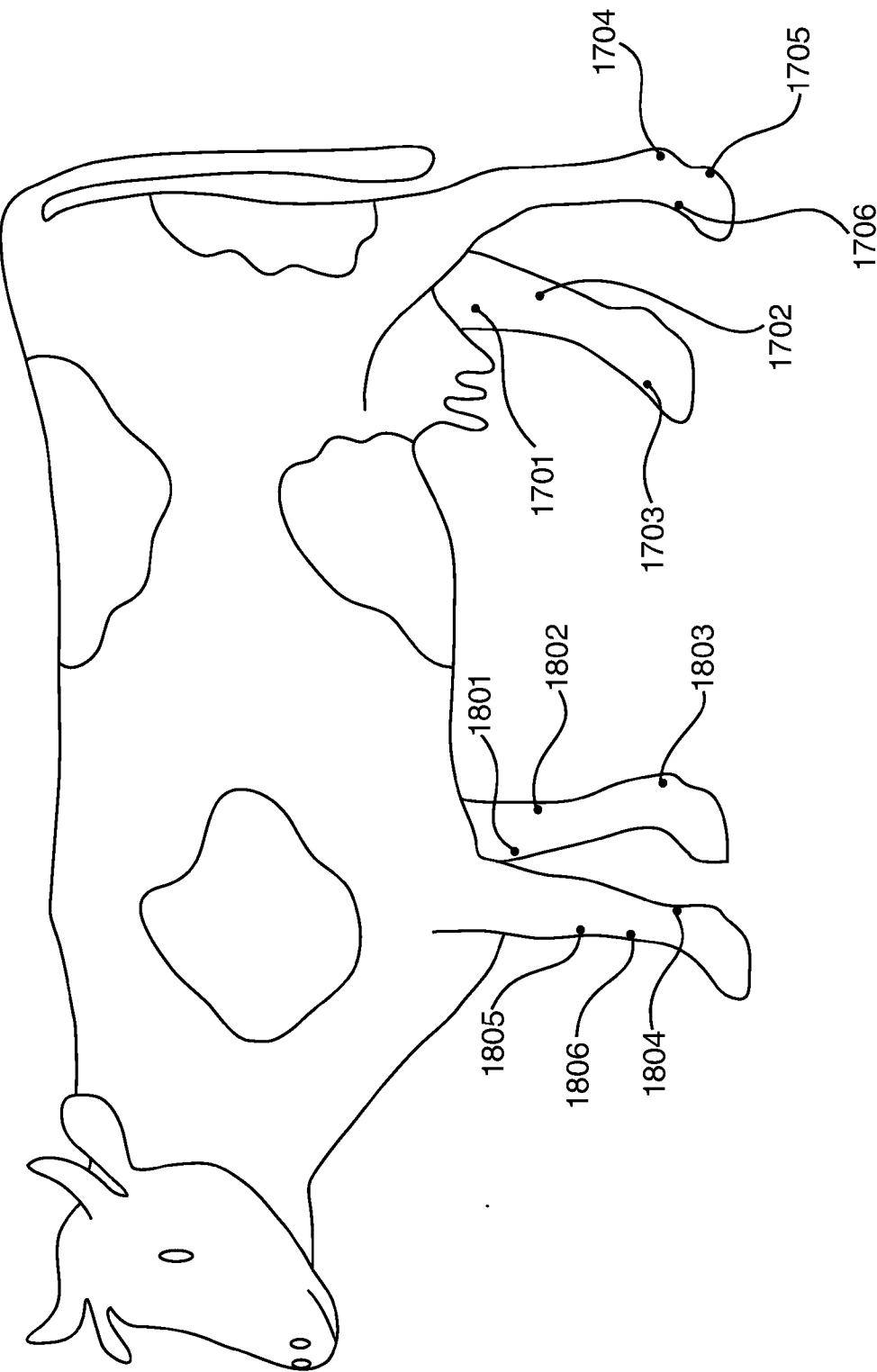


Fig.14D

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2023/079415

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **A61B 5/00** (2023.01); **A61B 5/053** (2023.01); **G16H 50/00** (2023.01); **G16H 70/60** (2023.01)
 CPC: **A61B 5/00**; A61B 5/053; G16H 50/20; G16H 70/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

CPC: A61B 5/053, 0531, 0532, 7282; G16H 50/20, 70/60

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN) FPRS; EPO; JPO; DERWENT; IBM_TDB)(L1 AND (probe near2 electrode) SAME

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,971,366 (Motoyama) 27 July 1976 (27.07.1976) entire document	1-20
A	US 6,934,581 B2 (Kanevsky) 23 August 2005 (23.08.2005) entire document	1-20
A	US 5,339,827 (Masopust) 23 August 1994 (23.08.1994) entire document	1-20

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
 "D" document cited by the applicant in the international application
 "E" earlier application or patent but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

27 December 2023 (27.12.2023)

Date of mailing of the international search report

28 December 2023 (28.12.2023)

Name and mailing address of the ISA/US

Commissioner for Patents
 Mail Stop PCT, Attn: ISA/US
 P.O. Box 1450
 Alexandria, VA 22313-1450, United States of America

Facsimile No. (571)273-8300

Authorized officer

KIM
 HARRY

Telephone No. 571-272-4300