CLAIMS

WHAT IS CLAIMED IS:

1. A wearable system for detecting an anomalous biologic event in a person, comprising:

a body having a first surface opposite a second surface in contact with a skin surface of a person;

a heat source in communication with the skin surface, wherein the heat source is configured to heat the skin surface to a target temperature;

a skin temperature sensor positioned on the second surface and configured to measure a temperature of the skin surface in contact with the heat source;

a blood volume sensor positioned on the second surface and configured to measure a blood volume of the skin surface; and

a hardware processor communicatively coupled to the heat source, the blood volume sensor, the skin temperature sensor, and an environmental temperature sensor configured to measure a temperature of the environment around the wearable system, wherein the hardware processor is configured to:

receive a baseline blood volume signal from the blood volume sensor,

output a heating signal to the heat source to initiate a heating cycle, wherein the heating cycle comprises heating the skin surface to the target temperature,

receive a second blood volume signal from the blood volume sensor in response to the skin surface reaching the target temperature,

compare the second blood volume signal to the baseline blood volume signal, and

determine whether an anomalous biologic event has occurred based on the comparison.

2. The wearable system of Claim 1, wherein the second blood volume signal comprises a set of blood volume signals, such that the blood volume of the skin surface is measured repeatedly before, during, and after a heating cycle of the heat source.

3. The wearable system of Claim 1, wherein the second blood volume signal comprises a plurality of blood volume signals, such that the blood volume of the skin surface is measured continuously before, during, and after a heating cycle of the heat source.

4. The wearable system of Claim 1, wherein hardware processor is further configured to receive the second blood volume signal after the target temperature is reached, after a predetermined length of time has expired, or after one or more heating cycles have concluded.

5. The wearable system of Claim 1, wherein comparing comprises calculating a baseline ratio of alternating current (AC) to direct current (DC) for the baseline blood volume signal and a second ratio of AC to DC for the second blood volume signal and comparing the baseline ratio to the second ratio.

6. The wearable system of Claim 1, wherein the environmental temperature sensor is positioned on the first side of the body of the wearable system.

7. The wearable system of Claim 1, further comprising a remote computing device communicative coupled to the wearable system and comprising the environmental temperature sensor.

8. The wearable system of Claim 7, wherein the remote computing device comprises one of: a laptop, cellular device, a workstation, a server, a desktop computer, a personal digital assistant, a second wearable system or device, or a netbook.

9. The wearable system of Claim 1, wherein the heat source is positioned on the second surface of the body.

10. The wearable system of Claim 9, wherein the hardware processor is further configured to:

receive baseline temperature signals from the skin temperature sensor and the environmental temperature sensor,

determine the target temperature based on the baseline temperature signals, and

determine whether the target temperature is below a maximum temperature value.

11. The wearable system of Claim 10, wherein the hardware processor is further configured to cycle the heat source to maintain the target temperature.

12. The wearable system of Claim 1, further comprising one or more electrodermal activity sensors positioned on the second surface.

13. The wearable system of Claim 12, wherein the one or more electrodermal activity sensors are spaced apart from the heating element by about 0.25 inches to about 4 inches.

14. The wearable system of Claim 1, further comprising one or more motion sensors configured to measure a motion of a body portion to which the wearable system is coupled.

15. The wearable system of Claim 1, wherein the first and second surfaces define a cavity therebetween to provide airflow between the first and second surfaces.

16. The wearable system of Claim 15, wherein the hardware processor resides on or within the first surface.

17. The wearable system of Claim 16, wherein the cavity defined by the first and second surfaces physically separates the heat source from the hardware processor on or within the first surface.

18. The wearable system of Claim 16, wherein the cavity defined by the first and second surfaces has sufficient volume to facilitate cooling of the heat source in between heating cycles.

19. The wearable system of Claim 1, wherein the anomalous biologic event comprises a stroke event.

20. The wearable system of Claim 1, wherein the wearable system is positioned on a left limb of a user and a second wearable system is positioned on a right limb of the user, wherein the second wearable system comprises a second heating element, a second skin temperature sensor, and a second blood volume sensor, wherein the hardware processor is further configured to compare right side blood volume signals to left side blood volume signals to determine whether the anomalous biologic event has occurred.

21. The wearable system of Claim 20, wherein the hardware processor is further configured to:

synchronize the signals received from the left limb and the right limb in time; and

compare the synchronized signals from the left limb and the right limb to determine whether the anomalous biologic event occurred.

22. The wearable system of Claim 21, wherein the comparison takes into account a baseline difference between the left limb and the right limb.

23. The wearable system of Claim 1, further comprising a tensionable band coupled to the body.

24. The wearable system of claim 23, wherein the tensionable band further comprises a visual indicator to indicate when one or more of: the heating element, the skin temperature sensor, the blood volume sensor, or a combination thereof is sufficiently coupled to the skin surface to enable accurate sensor readings.

25. The wearable system of Claim 24, wherein one or more ends of the tensionable band are coupled to the body at a position that is centered with respect to one or more sensors positioned on the second surface.

26. The wearable system of Claim 1, wherein the heat source is positioned concentrically about one or both of the blood volume sensor and the skin temperature sensor.

27. The wearable system of Claim 1, wherein the blood volume sensor comprises a photoplethysmography sensor or an impedance plethysmographic sensor.

28. The wearable system of Claim 1, wherein the skin temperature sensor comprises a thermocouple, a resistance temperature detector, a thermistor, or an infrared temperature sensor.

29. The wearable system of Claim 1, further comprising a support structure coupled to the heat source and configured to couple the heat source to the second surface and at least partially expose the heat source to the cavity.

30. The wearable system of Claim 1, wherein the blood volume sensor is further configured to measure one or more of: heart rate, heart rate variability, or oxygen saturation.

31. The wearable system of Claim 1, wherein the target temperature is individualized to the user.

32. The wearable system of Claim 31, wherein individualization of the target temperature comprises receiving a user input related to perceived temperature of the skin surface.

33. The wearable system of Claim 31, wherein individualization of the target temperature is based on signals received from the blood volume sensor.

34. The wearable system of Claim 1, wherein the heat source comprises one of: a heating element or an environmental temperature.

35. The wearable system of Claim 1, wherein the hardware processor is configured to transmit an electronic message to a first electronic system responsive to the determination of the anomalous biologic event, said first electronic system configured to electronically manage a home automation system.

36. The wearable system of Claim 35, wherein the home automation system comprises a door lock and wherein said electronic message is configured to instruct the first electronic system to unlock the door lock.

37. The wearable system of any of Claims 35 to 36, wherein the home automation system comprises a home alarm system and wherein said electronic message is configured to instruct the first electronic system to disable the home alarm system.

38. The wearable system of any of Claims 35 to 37, wherein the home automation system comprises a display and wherein said electronic message is configured to instruct the first electronic system to display user's medical information.

39. The wearable system of Claim 38, wherein the medical information comprises medication information and/or medication regimen compliance.

40. The wearable system of Claim 35, wherein the home automation system comprises a display and wherein said electronic message is configured to instruct the first electronic system to display stroke treatment user interface.

41. The wearable system of any of Claims 35 to 40, wherein the home automation system comprises a speaker system and wherein said electronic message is configured to instruct the first electronic system to trigger an audible alarm with the speaker system.

42. The wearable system of Claim 1, wherein the hardware processor is further configured to alert a third party computing system responsive to the determination of the anomalous biologic event.

43. The wearable system of Claim 42, wherein the third party computing system comprises an emergency service system.

44. The wearable system of Claim 42, wherein the third party computing system comprises a clinician computing system.

45. The wearable system of Claim 1, wherein the hardware processor is further configured to initiate treatment protocol responsive to the detection of anomalous biologic event.

46. The wearable system of Claim 45, further comprising a wearable treatment system and said treatment protocol is configured to activate the wearable treatment system.

47. The wearable system of Claim 46, wherein the wearable treatment system comprises an ultrasonic helmet.

48. The wearable system of Claim 46, wherein the wearable treatment system comprises a cooling gas delivery system.

49. The wearable system of Claim 46, wherein the wearable treatment system comprises a cooling helmet.

50. A wearable system for detecting an anomalous biologic event in a person, comprising:

a body having a first surface opposite a second surface in contact with a skin surface of a person, the first and second surfaces defining a cavity therebetween to provide airflow between the first and second surfaces;

a heating element positioned on the second surface and configured to heat the skin surface for a predetermined length of time;

a skin temperature sensor positioned on the second surface and configured to measure a temperature of the skin surface in contact with the heating element;

a blood volume sensor positioned on the second surface and configured to measure a blood volume of the skin surface;

a hardware processor communicatively coupled to the heating element, the blood volume sensor, the skin temperature sensor, and an environmental temperature sensor configured to measure a temperature of the environment around the wearable system, wherein the hardware processor is configured to:

receive a baseline blood volume signal from the blood volume sensor,

output a heating signal to the heating element to initiate a heating cycle, wherein the heating cycle comprises heating the skin surface to a target temperature,

receive a second blood volume signal from the blood volume sensor in response to the skin surface reaching the target temperature,

compare the second blood volume signal to the baseline blood volume signal, and

determine whether an anomalous biologic event has occurred based on the comparison.

51. A wearable system for detecting an anomalous biologic event in a person, comprising:

a body having a first surface opposite a second surface in contact with a skin surface of a person;

a heat source in communication with the skin surface, wherein the heat source is configured to heat the skin surface to a target temperature;

a skin temperature sensor positioned on the second surface and configured to measure a temperature of the skin surface in contact with the heat source;

a sensor positioned on the second surface and configured to measure a parameter of interest of the person; and

a hardware processor communicatively coupled to the heat source, the sensor, the skin temperature sensor, and an environmental temperature sensor configured to measure a

temperature of the environment around the wearable system, wherein the hardware processor is configured to:

receive a baseline sensor signal from the sensor,

output a heating signal to the heat source to initiate a heating cycle, wherein the heating cycle comprises heating the skin surface to the target temperature,

receive a second sensor signal from the sensor in response to the skin surface reaching the target temperature,

compare the second sensor signal to the baseline sensor signal, and

determine whether an anomalous biologic event has occurred based on the comparison.

52. The wearable system of Claim 51, wherein the sensor is selected from the group consisting of: a stretch sensor, an electrodermal activity sensor, an electrocardiogram sensor, a camera, or a blood volume sensor.

53. The wearable system of Claim 51, wherein the parameter of interest includes one or more of: a blood pressure, a heart rate, a heart rate variability, a gaze, a facial expression, a skin conductance response, a vasodilation response, or a dilation response.

54. A wearable system for detecting an anomalous biologic event in a person, comprising:

a body having a first surface opposite a second surface in contact with a skin surface of a person;

a stimulus source in communication with the skin surface, wherein the stimulus source is configured to apply a stimulus to the skin surface;

a blood volume sensor positioned on the second surface and configured to measure a blood volume of the skin surface; and

a hardware processor communicatively coupled to the stimulus source and the blood volume sensor, wherein the hardware processor is configured to:

receive a baseline blood volume signal from the blood volume sensor,

output a stimulus signal to the stimulus source to initiate a stimulus cycle,

receive a second blood volume signal from the blood volume sensor in response to the initiation of the stimulus cycle,

compare the second blood volume signal to the baseline blood volume signal, and

determine whether an anomalous biologic event has occurred based on the comparison.

55. The wearable system of Claim 54, wherein the stimulus source comprises a heat source.

56. The wearable system of Claim 54, wherein the stimulus source comprises an electrical source.

57. The wearable system of Claim 54, wherein the comparison comprises determining a change in vasodilation response.

58. The wearable system of Claim 54, wherein the stimulus source comprises a Peltier cooler.

59. The wearable system of Claim 54, wherein the second blood volume signal comprises a set of blood volume signals, such that the blood volume of the skin surface is measured repeatedly before, during, and after the stimulus cycle.

60. The wearable system of Claim 54, wherein the second blood volume signal comprises a plurality of blood volume signals, such that the blood volume of the skin surface is measured continuously before, during, and after the stimulus cylce.

61. The wearable system of Claim 54, wherein hardware processor is further configured to receive the second blood volume signal after a target stimulus is reached, after a predetermined length of time has expired, or after one or more stimulus cycles have concluded.

62. The wearable system of Claim 54, wherein comparing comprises calculating a baseline ratio of alternating current (AC) to direct current (DC) for the baseline blood volume signal and a second ratio of AC to DC for the second blood volume signal and comparing the baseline ratio to the second ratio.

63. The wearable system of Claim 54, wherein the blood volume sensor is positioned on the first side of the body of the wearable system.

64. The wearable system of Claim 54, further comprising a remote computing device communicative coupled to the wearable system and comprising the blood volume sensor.

65. The wearable system of Claim 64, wherein the remote computing device comprises one of: a laptop, cellular device, a workstation, a server, a desktop computer, a personal digital assistant, a second wearable system or device, or a netbook.

66. The wearable system of Claim 54, wherein the stimulus source is positioned on the second surface of the body.

67. The wearable system of Claim 66, wherein the hardware processor is further configured to:

receive baseline blood volume signals from the blood volume sensor,

determine the target blood volume based on the baseline blood volume signals, and

determine whether the target blood volume is below a maximum blood volume value.

68. The wearable system of Claim 67, wherein the hardware processor is further configured to cycle the stimulus source to maintain the target blood volume.

69. The wearable system of Claim 54, further comprising one or more electrodermal activity sensors positioned on the second surface.

70. The wearable system of Claim 69, wherein the one or more electrodermal activity sensors are spaced apart from the stimulus source by about 0.25 inches to about 4 inches.

71. The wearable system of Claim 54, further comprising one or more motion sensors configured to measure a motion of a body portion to which the wearable system is coupled.

72. The wearable system of Claim 54, wherein the first and second surfaces define a cavity therebetween to provide airflow between the first and second surfaces.

73. The wearable system of Claim 72, wherein the hardware processor resides on or within the first surface.

74. The wearable system of Claim 73, wherein the cavity defined by the first and second surfaces physically separates the stimulus source from the hardware processor on or within the first surface.

75. The wearable system of Claim 73, wherein the cavity defined by the first and second surfaces has sufficient volume to facilitate cooling of the stimulus source in between stimulus cycles.

76. The wearable system of Claim 54, wherein the anomalous biologic event comprises a stroke event.

77. The wearable system of Claim 54, wherein the wearable system is positioned on a left limb of a user and a second wearable system is positioned on a right limb of the user, wherein the second wearable system comprises a second stimulus source and a second blood volume sensor, wherein the hardware processor is further configured to compare right side blood volume signals to left side blood volume signals to determine whether the anomalous biologic event has occurred.

78. The wearable system of Claim 77, wherein the hardware processor is further configured to:

synchronize the signals received from the left limb and the right limb in time; and

compare the synchronized signals from the left limb and the right limb to determine whether the anomalous biologic event occurred.

79. The wearable system of Claim 78, wherein the comparison takes into account a baseline difference between the left limb and the right limb.

80. The wearable system of Claim 54, further comprising a tensionable band coupled to the body.

81. The wearable system of claim 80, wherein the tensionable band further comprises a visual indicator to indicate when one or more of: the stimulus source, the blood volume sensor, or a combination thereof is sufficiently coupled to the skin surface to enable accurate sensor readings.

82. The wearable system of Claim 81, wherein one or more ends of the tensionable band are coupled to the body at a position that is centered with respect to one or more sensors positioned on the second surface.

83. The wearable system of Claim 54, wherein the stimulus source is positioned concentrically about the blood volume sensor.

84. The wearable system of Claim 54, wherein the blood volume sensor comprises a photoplethysmography sensor or an impedance plethysmographic sensor.

85. The wearable system of Claim 54, further comprising a support structure coupled to the stimulus source and configured to couple the stimulus source to the second surface and at least partially expose the stimulus source to the cavity.

86. The wearable system of Claim 54, wherein the blood volume sensor is further configured to measure one or more of: heart rate, heart rate variability, or oxygen saturation.

87. The wearable system of Claim 54, wherein the stimulus cylce is individualized to the user.

88. The wearable system of Claim 87, wherein individualization of the stimulus cycle comprises receiving a user input related to perceived stimulus of the skin surface.

89. The wearable system of Claim 87, wherein individualization of the stimulus cylce is based on signals received from the blood volume sensor.

90. The wearable system of Claim 54, wherein the stimulus source comprises one of: a heating element or an environmental temperature.

91. The wearable system of Claim 54, wherein the hardware processor is configured to transmit an electronic message to a first electronic system responsive to the determination of the anomalous biologic event, said first electronic system configured to electronically manage a home automation system.

92. The wearable system of Claim 91, wherein the home automation system comprises a door lock and wherein said electronic message is configured to instruct the first electronic system to unlock the door lock.

93. The wearable system of any of Claims 91 to 92, wherein the home automation system comprises a home alarm system and wherein said electronic message is configured to instruct the first electronic system to disable the home alarm system.

94. The wearable system of any of Claims 91 to 93, wherein the home automation system comprises a display and wherein said electronic message is configured to instruct the first electronic system to display user's medical information.

95. The wearable system of Claim 94, wherein the medical information comprises medication information and/or medication regimen compliance.

96. The wearable system of Claim 91, wherein the home automation system comprises a display and wherein said electronic message is configured to instruct the first electronic system to display stroke treatment user interface.

97. The wearable system of any of Claims 91 to 96, wherein the home automation system comprises a speaker system and wherein said electronic message is configured to instruct the first electronic system to trigger an audible alarm with the speaker system.

98. The wearable system of Claim 54, wherein the hardware processor is further configured to alert a third party computing system responsive to the determination of the anomalous biologic event.

99. The wearable system of Claim 98, wherein the third party computing system comprises an emergency service system.

100. The wearable system of Claim 98, wherein the third party computing system comprises a clinician computing system.

101. The wearable system of Claim 54, wherein the hardware processor is further configured to initiate treatment protocol responsive to the detection of anomalous biologic event.

102. The wearable system of Claim 101, further comprising a wearable treatment system and said treatment protocol is configured to activate the wearable treatment system.

103. The wearable system of Claim 102, wherein the wearable treatment system comprises an ultrasonic helmet.

104. The wearable system of Claim 102, wherein the wearable treatment system comprises a cooling gas delivery system.

105. The wearable system of Claim 102, wherein the wearable treatment system comprises a cooling helmet.

106. A system for detecting an anomalous biologic event in a person, the system comprising:

a first stimulus source configured to stimulate a first tissue site on a right side of the person's body at a first time;

a second stimulus source configured to stimulate a second tissue site on a left side of the person's body at a second time; and

one or more hardware processors configured to:

determine a first vasodilation response based on the stimulation of the first tissue site;

determine a second vasodilation response based on the stimulation of the second tissue site;

determine one or more differences in the first vasodilation response and the second vasodilation response; and

detect an anomalous biologic event based on the determined one or more differences in the first vasodilation response and the second vasodilation response.

107. The system of Claim 106, wherein the first stimulus source comprises at least one or more of the following: a heat source, a cooling source, or an electrical source.

108. The system of Claim 106, wherein the second stimulus source comprises at least one or more of the following: a heat source, a cooling source, or an electrical source.

109. The system of Claim 106, wherein the first time is synchronized with the second time.

110. The system of Claim 106, wherein the first vasodilation response is determined based on a parameter responsive to a measurement from a first blood volume sensor.

111. The system of Claim 106, wherein the second vasodilation response is determined based on a parameter responsive to a measurement from a second blood volume sensor.

112. The system of Claim 106, wherein the first vasodilation response is determined based on a parameter responsive to a measurement from an electrical activity sensor.

113. The system of Claim 106, wherein the second vasodilation response is determined based on a parameter responsive to a measurement from an electrical activity sensor.

114. The system of Claim 106, wherein the one or more hardware processors are further configured to determine a first baseline vasodilation response before the stimulation at the first tissue site and determine a second baseline vasodilation response before the stimulation at the second tissue site.

115. A wearable system for detecting a stroke event in a person, the wearable system comprising:

a first wearable device configured to be in contact with a first skin surface of a person, said first wearable device configured to be secured to a left limb of the person, said first wearable device comprising:

a first heat source in communication with the first skin surface, wherein the first heat source is configured to heat the first skin surface to a first target temperature;

a first skin temperature sensor configured to measure a first temperature of the first skin surface; and

a first blood volume sensor configured to measure a first blood volume at a first tissue site proximate to the first skin surface;

a second wearable device configured to be in contact with a second skin surface of the person, said second wearable device configured to be secured to a right limb of the person, said second wearable device comprising:

a second heat source in communication with the second skin surface, wherein the second heat source is configured to heat the second skin surface to a second target temperature;

a second skin temperature sensor configured to measure a second temperature of the second skin surface; and

a second blood volume sensor configured to measure a second blood volume at a second tissue site proximate to the second skin surface; and

one or more hardware processors configured to:

receive a first baseline blood volume signal from the first blood volume sensor;

receive a second baseline blood volume signal from the second blood volume sensor;

output a first heating signal to the first heat source to initiate a first heating cycle at a first time, wherein the first heating cycle comprises heating the first skin surface to the first target temperature;

receive a first post stimulation blood volume signal from the first blood volume sensor in response to the first skin surface reaching the first target temperature;

output a second heating signal to the second heat source to initiate a second heating cycle at a second time, wherein the second heating cycle comprises heating the second skin surface to the second target temperature;

receive a second post stimulation blood volume signal from the second blood volume sensor in response to the second skin surface reaching the second target temperature; and

determine a stroke event based on the first baseline blood volume signal, the second baseline blood volume signal, the first post stimulation blood volume signal, and the second post stimulation blood volume signal.

116. The wearable system of Claim 115, wherein the second post stimulation blood volume signal comprises a set of blood volume signals, such that the second blood volume of the second skin surface is measured repeatedly before, during, and after a heating cycle of the second heat source.

117. The wearable system of Claim 115, wherein the second post stimulation blood volume signal comprises a plurality of blood volume signals, such that the second blood volume of the second skin surface is measured continuously before, during, and after a heating cycle of the second heat source.

118. The wearable system of Claim 115, wherein the one or more hardware processors is further configured to calculate a first baseline ratio of alternating current (AC) to direct current (DC) for the first baseline blood volume signal and a second baseline ratio of AC to DC for the second blood volume signal and to compare the first baseline ratio to the second baseline ratio.

119. The wearable system of Claim 115, wherein the first wearable device further comprises an environmental temperature sensor.

120. The wearable system of Claim 115, further comprising a remote computing device communicative coupled to the first wearable device and the second wearable device.

121. The wearable system of Claim 120, wherein the remote computing device comprises one of: a laptop, cellular device, a workstation, a server, a desktop computer, a personal digital assistant, a second wearable system or device, or a netbook.

122. The wearable system of Claim 115, further comprising one or more electrodermal activity sensors.

123. The wearable system of Claim 122, wherein the one or more electrodermal activity sensors are spaced apart from at least one of the firest heat source or the second heat source by about 0.25 inches to about 4 inches.

124. The wearable system of Claim 115, further comprising one or more motion sensors configured to measure a motion of a body portion to which at least one of the first wearable device or the second wearable device is coupled.

125. The wearable system of Claim 115, further comprising at least one tensionable band coupled to the body.

126. The wearable system of Claim 115, wherein the first heat source is positioned concentrically about one or both of the first blood volume sensor and the first skin temperature sensor.

127. The wearable system of Claim 115, wherein the second heat source is positioned concentrically about one or both of the second blood volume sensor and the second skin temperature sensor.

128. The wearable system of Claim 115, wherein the first blood volume sensor comprises a photoplethysmography sensor or an impedance plethysmographic sensor.

129. The wearable system of Claim 115, wherein the second blood volume sensor comprises a photoplethysmography sensor or an impedance plethysmographic sensor.

130. The wearable system of Claim 115, wherein the first skin temperature sensor comprises a thermocouple, a resistance temperature detector, a thermistor, or an infrared temperature sensor.

131. The wearable system of Claim 115, wherein the second skin temperature sensor comprises a thermocouple, a resistance temperature detector, a thermistor, or an infrared temperature sensor.

132. The wearable system of Claim 115, wherein the first blood volume sensor is further configured to measure one or more of: heart rate, heart rate variability, or oxygen saturation.

133. The wearable system of Claim 115, wherein the second blood volume sensor is further configured to measure one or more of: heart rate, heart rate variability, or oxygen saturation.

134. The wearable system of Claim 115, wherein at least one of the first target temperature or the second target temperature is individualized to the user.

135. The wearable system of Claim 115, wherein the determination of the stroke event is further based on stored reference data corresponding to healthy individual.

136. A wearable system for detecting a stroke event in a person, the wearable system comprising:

a first wearable device configured to be in contact with a first skin surface of a person, said first wearable device configured to be secured to a left limb of the person, said first wearable device comprising:

a first stimulus source in communication with the first skin surface, wherein the first stimulus source is configured to apply a first stimulus to the first skin surface; and

a first sensor configured to measure a first response at a first tissue site proximate to the first skin surface;

a second wearable device configured to be in contact with a second skin surface of the person, said second wearable device configured to be secured to a right limb of the person, said second wearable device comprising:

a second stimulus source in communication with the second skin surface, wherein the second stimulus source is configured to apply a second stimulus to the second skin surface; and

a second sensor configured to measure a second response at a second tissue site proximate to the second skin surface; and

one or more hardware processors configured to:

output a first stimulus signal to the first stimulus source to initiate the application of the first stimulus at a first time;

receive the first response after the application of the first stimulus;

output a second stimulus signal to the second stimulus source to initiate the application of the second stimulus at a second time;

receive the second response after the application of the second stimulus; and

determine a stroke event based on the first response and the second response.

137. A method for detecting a stroke event in a person, the method comprising:

securing a first wearable device configured to be in contact with a first skin surface of a person to a left limb of the person, said first wearable device comprising a first stimulus source and a first sensor;

securing a second wearable device configured to be in contact with a second skin surface of the person to a right limb of the person, said second wearable device comprising a second stimulus source and a second sensor; and

outputting a first stimulus signal to the first stimulus source to initiate an application of a first stimulus at a first time;

receiving a first response measured by the first sensor after the application of the first stimulus;

outputting a second stimulus signal to the second stimulus source to initiate an application of a second stimulus at a second time;

receiving a second response measured by the second sensor after the application of the second stimulus; and

determining a stroke event based on the first response and the second response.

CLAIMS

1. A system for detecting a stroke event in a person, the system comprising:

a first device configured to monitor a first skin surface of a person, said first device configured to track a left side of the person, said first device comprising:

a first thermal stimulus source in thermal communication with the first skin surface, wherein the first thermal stimulus source comprises a first surface area extending on a first body surface of the first device, and wherein the first body surface is configured to contact the first skin surface, and

a first skin temperature sensor configured to measure a first temperature of the first skin surface, wherein the first skin temperature sensor is positioned in a first opening enclosed by the first surface area; and

a second device configured to monitor a second skin surface of the person, said second device configured to track a right side of the person, said second device comprising:

a second thermal stimulus source in thermal communication with the second skin surface, wherein the second thermal stimulus source comprises a second surface area extending on a second body surface of the second device, and wherein the second body surface is configured to contact the second skin surface, and

a second skin temperature sensor configured to measure a second temperature of the second skin surface, wherein the second skin temperature sensor is positioned in a second opening enclosed by the second surface area.

2. The system of Claim 1, further comprising one or more hardware processors communicatively coupled to the first and second devices configured to detect a stroke event based on a temperature asymmetry determination responsive to measurements from the first skin temperature sensor and the second skin temperature sensor.

3. The system of Claim 1, wherein the first device and the second device comprise imagers or cameras for assessing a facial region of the person.

4. The system of Claim 1, wherein the first thermal source is positioned concentrically about one or both of the first blood volume sensor and the first skin temperature sensor.

5. The system of Claim 1, wherein the first device further comprise an optical sensor configured to monitor the blood flow.

6. The system of Claim 1, wherein the first device further comprises an array of indicators configured to measure a bodily fluid of the person.

7. The system of Claim 1, wherein the first thermal stimulus source and the second thermal stimulus source cycle between the target temperature and a deactivated or off state to maintain a target temperature.

8. The system of Claim 1, wherein the first device and the second device further comprise a port.

9. The system of Claim 8, wherein the port electrically couples the first device and second device to a power source.

10. The system of Claim 8, wherein the port electrically couples the first device and second device to an external or remote computing device.

11. The system of Claim 1, wherein the first device and the second device further comprise a feedback mechanism for alerting the person after the detection of tremors or asymmetrical motion.

12. The system of Claim 1, wherein the first thermal stimulus comprises a printed layer of resistive ink on polyimide file.

13. The system of Claim 1, wherein a support structure exerts pressure on the first thermal stimulus source and the second thermal stimulus source to increase contact or coupling between the first and second thermal stimulus source and the first and second skin surface.

14. A device configured to detect a stroke event in a person, the device comprising:

a thermal stimulus source in thermal communication with a skin surface, wherein the thermal stimulus source comprises a surface area extending on a body surface of the device, and wherein the body surface is configured to contact the skin surface, and

a skin temperature sensor configured to measure a temperature of the skin surface, wherein the skin temperature sensor is positioned in an opening enclosed by the surface area.

15. The device of Claim 14, further comprising a remote computer device communicatively coupled to the device, the device transmitting data to the remote computer device.

16. The device of Claim 14, wherein the remote computing device comprises one of: a laptop, cellular device, a workstation, a server, a desktop computer, a personal digital assistant, a second system or device, or a netbook.

17. The device of Claim 14, further comprising one or more hardware processors communicatively coupled to the device configured to detect a stroke event based on a temperature asymmetry determination responsive to measurements from the skin temperature sensor and a second skin temperature sensor.

18. The device of Claim 14, wherein the device further comprise an optical sensor configured to monitor the blood flow.

19. The device of Claim 14, wherein the device further comprises an array of indicators configured to measure a bodily fluid of the person.

20. The device of Claim 14, wherein the thermal stimulus comprises a printed layer of resistive ink on polyimide file.