

Claims

- [Claim 1] A method of treating cancer cachexia in a subject in need thereof, the method comprising:
providing, by an electronic device to the subject, one or more first modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, each of the one or more first modules comprising one or more first instructions for the subject to follow; and
providing, by the electronic device to the subject, one or more second modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, the one or more second modules comprising the one or more second instructions, wherein the electronic device comprises a sensor sensing adherence by the subject to the first instructions of the one or more first modules, transmits adherence information, based on the adherence, to a server, and receives one or more second instructions from the server based on the adherence information.
- [Claim 2] The method according to claim 1, wherein the voluntary skeletal muscle exercise module comprises one or more instructions to increase MGF/IGF-1 secretion in the subject.
- [Claim 3] The method according to claim 1, wherein the one or more first modules comprise the vagal nerve stimulation module, and the vagal nerve stimulation module comprises at least one instructions selected from the group consisting of sense stimulation instructions for sight, sound, touch, taste, and smell.
- [Claim 4] The method according to claim 1, wherein the one or more first modules comprise the aerobic exercise module, and the aerobic exercise module comprises one or more first instructions to increase adiponectin secretion in the subject.
- [Claim 5] The method according to claim 1, wherein the one or more first modules comprise the relaxation module, and the relaxation module comprises one or more first instructions to increase adiponectin secretion in the subject.
- [Claim 6] The method according to claim 1, wherein the subject is a late cancer patient, and the method excludes providing a voluntary skeletal muscle

- exercise module.
- [Claim 7] The method according to claim 1, wherein the sensor comprises one or more of: a camera, an accelerometer, a magnetometer, a light sensor, a microphone, a proximity sensor, a touch sensor, a gyroscope, a Global Positioning System (GPS) sensor, an ambient light sensor, a fingerprint sensor, a pedometer, a heart rate sensor, and a thermometer.
- [Claim 8] The method according to claim 1, wherein the sensor comprises a touch sensor, and the subject provides the adherence information to the electronic device using the touch sensor.
- [Claim 9] A system for treating cancer cachexia in a subject, comprising:
a digital apparatus configured to execute a digital application comprising one or more first modules, for treating cancer cachexia in a subject, wherein the digital apparatus comprises a sensor for sensing adherence by the subject to a first set of instructions of the one or more first modules;
a healthcare provider portal configured to provide one or more options to a healthcare provider to perform one or more tasks to prescribe treatment for the cancer cachexia in the subject based on information received from the digital application; and
an administrative portal configured to provide one or more options to an administrator of the system to perform one or more tasks to manage access to the system by the healthcare provider.
- [Claim 10] The system of claim 9, wherein the digital apparatus generates digital therapeutic modules based on biochemical factors related to the cancer cachexia.
- [Claim 11] The system according to claim 9, wherein the digital application transmits data to a server, and wherein the server receives one or more second instructions from an external reviewer.
- [Claim 12] The system according to claim 9, wherein the one or more options provided to the healthcare provider are selected from the group consisting of adding or removing the subject, viewing or editing personal information for the subject, viewing adherence information for the subject, viewing a result of the subject for one or more at least partially completed digital therapeutic modules, prescribing one or more digital therapeutic modules to the subject, altering a prescription for one or more digital therapeutic modules, and communicating with the subject.
- [Claim 13] The system of claims 9, wherein the one or more options comprise the

viewing the adherence information, and the adherence information of the subject comprises one or more of a number of scheduled or prescribed digital therapeutic modules completed by the subject, and a calendar identifying one or more days on which the subject completed, partially completed, or did not complete one or more scheduled or prescribed digital therapeutic modules.

[Claim 14]

The system of claim 9, wherein information, which is received from the subject, comprises at least one of basal factors, medical information, or digital therapeutics literacy of the subject, the basal factors including the subject's activity, heart rate, sleep, and diet which includes nutrition and calories, the medical information including the subject's electronic medical record (EMR), family history, genetic vulnerability, and genetic susceptibility, and the digital therapeutics literacy including the subject's accessibility, and technology adoption to the digital therapeutics and the apparatus.

[Claim 15]

The system of claim 9, wherein the outcome collection unit collects execution outcomes of digital instructions by monitoring the subject's adherence to the digital instructions or allowing the subject to directly input the subject's adherence to the digital instructions.

[Claim 16]

A computing system for treating cancer cachexia in a subject in need thereof, comprising:
 a display configured to provide, to the subject, one or more first modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, each of the one or more first modules comprising one or more first instructions for the subject to follow;
 a sensor configured to sense adherence by the subject to the instructions of the one or more first modules;
 a transmitter configured to transmit adherence information, based on the adherence, to a server; and
 a receiver configured to receive, from the server, one or more second instructions based on the adherence information,
 wherein the display is further configured to provide, to the subject, one or more second modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, each of

the one or more second modules comprising the one or more second instructions.

[Claim 17]

A non-transitory computer readable medium having stored thereon software instructions for treating cancer cachexia in a subject in need thereof that, when executed by a processor, cause the processor to: display, by an electronic device to the subject, one or more first modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, each of the one or more first modules comprising instructions for the subject to follow; sense, by a sensor in the electronic device, adherence by the subject to the instructions of the one or more first modules; transmit, by the electronic device, adherence information, based on the adherence, to a server; receive, from the server, one or more second instructions based on the adherence information; and display, to the subject, one or more second modules selected from the group consisting of a voluntary skeletal muscle exercise module, a vagal nerve stimulation module, an aerobic exercise module, and a relaxation module, the one or more second modules comprising the one or more second instructions.