CLAIMS:

[Claim 1]

A system for monitoring and determining progress of a patient's rehabilitative treatment, the system comprising:

a patient output device for displaying visual and/or presenting auditory instructions to the patient;

a plurality of sensory devices for sensing physiological performance and body portion movement while the patient moves two or more portions of the patient's body in response to the visual and/or auditory instructions; and

a processing means for generating first data in response to the sensed movement of a first portion of the patient's body, generating second data in response to the sensed movement of a second portion of the patient's body, and determining an objective functional recovery level representing the patient's rehabilitative treatment progress in response to all of a manifested category, a latent category and a significant category of the first data and the second data.

[Claim 2]

The system in accordance with claim 1 wherein the processing means generates the first data by generating first physiological performance data in response to the sensed physiological performance of the first portion of the patient's body, generating first sensed movement data in response to the sensed movement of the first portion of the patient's body, and segmenting the first physiological performance data and the first sensed movement data to generate the first data.

[Claim 3]

The system in accordance with claim 2 wherein the processing means generates the second data by generating second physiological performance data in response to the sensed physiological performance of the second portion of the patient's body, generating second sensed movement data in response to the sensed movement of the second portion of the patient's body, and segmenting the second physiological performance data and the second sensed movement data to generate the second data.

[Claim 4]

The system in accordance with claim 3 wherein the processing means determines the objective functional recovery level by determining the objective functional recovery level representing the patient's rehabilitative treatment progress in response to corresponding segmented portions of the first data and the second data.

[Claim 5]

The system in accordance with any of claims 1 to 4 wherein the first portion of the patient's body is an affected portion of the patient's body requiring rehabilitative treatment and wherein the second portion of the patient's body is an unaffected portion of the patient's body which is healthy.

[Claim 6]

The system in accordance with any of claims 1 to 5 wherein the processing means comprises:

first processing means for generating the first data in response to the sensed movement of the first portion of the patient's body and generating the second data in response to the sensed movement of the second portion of the patient's body; and

second processing means for determining the objective functional recovery level representing the patient's rehabilitative treatment progress in response to all of the manifested category, the latent category and the significant category of the first data and the second data,

the system further comprising transceiving means coupled between the first processing means and the second processing means, the transceiving means transmitting the first data and the second data from a first location where the patient is responding to the visual and/or auditory instructions to a second location wherein the objective functional recovery level representing the patient's rehabilitative treatment progress is determined.

[Claim 7]

The system in accordance with claim 2 wherein the processing means generates the first physiological performance data in response to an electromyography (EMG) of the sensed physiological performance of the first portion of the patient's body and generates the first sensed movement data in response to inertial measurement units (IMU) of the sensed movement of the first

portion of the patient's body.

[Claim 8]

The system in accordance with claim 5 wherein the first portion of the patient's body moved comprises an affected one of the patient's arm, the patient's leg, the patient's hand, the patient's foot, the patient's fingers or the patient's toes, and wherein the second portion of the patient's body moved comprises an unaffected other one of the patient's arm, the patient's leg, the patient's hand, the patient's foot, the patient's fingers or the patient's toes.

[Claim 9]

A method for monitoring and determining progress of a patient's rehabilitative treatment, the method comprising:

sensing physiological performance and body portion movement while moving two or more portions of the patient's body in response to visual and/or auditory instructions;

generating first data in response to the sensed movement of a first portion of the patient's body;

generating second data in response to the sensed movement of a second portion of the patient's body; and

determining an objective functional recovery level representing the patient's rehabilitative treatment progress in response to all of a manifested category, a latent category and a significant category of the first data and the second data.

[Claim 10]

A non-transitory computer readable medium containing program instructions for causing a computer to perform a method for monitoring and determining progress of a patient's rehabilitative treatment comprising:

receiving first physiological performance data in response to a sensed physiological performance of a first portion of the patient's body;

receiving first sensed movement data in response to a sensed movement of the first portion of the patient's body;

segmenting the first physiological performance data and the first sensed movement data to generate first data;

receiving second physiological performance data in response to a sensed

physiological performance of a second portion of the patient's body;

receiving second sensed movement data in response to a sensed movement of the second portion of the patient's body;

segmenting the second physiological performance data and the second sensed movement data to generate second data; and

determining an objective functional recovery level representing the patient's rehabilitative treatment progress in response to all of a manifested category, a latent category and a significant category of corresponding segmented portions of the first data and the second data.