

Those skilled in the art will appreciate that various adaptations and modifications of the above-described preferred embodiments can be configured without departing from the scope and spirit of the invention. Therefore, it is to be understood that, within the scope of the appended claims, the invention may be practiced other than as specifically described herein.

We claim:

1. A method comprising:
 - collecting activity information of an individual with an actigraph,
 - providing a data series representing wake states and sleep states of the individual based on an analysis of the activity information using a sleep scoring system,
 - selecting a function based on the type of data in the data series,
 - calculating a cognitive performance capacity based on the selected function,
 - modulating the cognitive performance capacity with a time of day value, and
 - outputting the modulated value as the cognitive performance level.
2. The method according to claim 1, further comprising:
 - storing the modulated values as coordinates representing time and amplitude,
 - repeating the calculating, modulating and outputting steps of claim 1,
 - plotting a curve from the stored modulated values, and
 - outputting the curve representing cognitive performance level over a period of time.
3. The method according to claim 2, further comprising extrapolating from the curve a predictive curve based on anticipated wake states and anticipated sleep states.
4. The method according to claim 1, wherein said outputting step includes outputting the modulated value to a display.
5. The method according to claim 1, wherein said outputting step includes outputting the modulated value to a data file.
6. The method according to claim 1, wherein said outputting step includes outputting the modulated value to a printing device.
7. The method according to claim 1, further comprising formulating the time of day values to represent a curve having a period of 24 hours such that the curve includes a first sinusoidal curve having a 24-hour period and a second sinusoidal curve having a 12-hour period.
8. The method according to claim 1, wherein the time of day values represent a curve having a period of 24 hours such that the curve includes a first sinusoidal curve having a 24-hour period and a second sinusoidal curve having a 12-hour period.
9. The method according to claim 1, wherein the selecting step includes selecting from a group consisting of a wake function, a sleep function, a delay function, and a sleep inertia function.
10. The method according to claim 1, wherein the selecting step includes
 - determining the present state for the data series as either the wake state or the sleep state,
 - calculating a length of time in the present state, and
 - selecting the function based on one of:
 - the length of time in the present state and the present state, and
 - the length of time in a recent transition from wake to sleep or sleep to wake.

11. The method according to claim 10, wherein the selecting step includes selecting the function from a group consisting of a wake function, a sleep function, a delay function, and a sleep inertia function.

12. The method according to claim 1, wherein the calculating step calculates a cognitive performance level as a percentage value such that 100% is a maximum cognitive performance capacity.

13. The method according to claim 1, wherein said method is performed in real-time.

14. A method comprising:

- collecting activity information of an individual with an actigraph,
- providing a data series representing wake states and sleep states of the individual based on an analysis of the activity information using a sleep scoring system,
- selecting a function based on the type of data in the data series,
- calculating a cognitive performance capacity based on the selected function,
- approximating a first curve of calculated cognitive performance capacities, storing the first curve,
- modulating the first curve with a second curve representing time of day rhythms, and
- outputting the modulated first curve.

15. The method according to claim 14, wherein said outputting step includes outputting a value of a point on the modulated first curve to a display.

16. The method according to claim 14, wherein said outputting step includes outputting a value of a point on the modulated first curve to a data file.

17. The method according to claim 14, wherein said outputting step includes outputting a value of a point on the modulated first curve to a printing device.

18. The method according to claim 14, further comprising extrapolating from the modulated first curve a predictive curve based on anticipated wake states and sleep states.

19. The method according to claim 14, further comprising formulating the second curve having a period of 24 hours such that the curve includes a first sinusoidal curve having a 24-hour period and a second sinusoidal curve having a 12-hour period.

20. The method according to claim 14, wherein the second curve having a period of 24 hours such that the curve includes a first sinusoidal curve having a 24-hour period and a second sinusoidal curve having a 12-hour period.

21. The method according to claim 14, wherein the selecting step includes selecting from a group consisting of a wake function, a sleep function, a delay function, and a sleep inertia function.

22. The method according to claim 14, wherein the selecting step includes:

- determining the present state for the data series as either the wake state or the sleep state,
- calculating a length of time in the present state, and
- selecting the function based on one of
 - the length of time in the present state and the present state, and
 - the length of time in a recent transition from wake to sleep or sleep to wake.

23. The method according to claim 22, wherein the selecting step includes selecting the function from a group consisting of a wake function, a sleep function, a delay function, and a sleep inertia function.

24. The method according to claim 14, wherein the calculating step includes calculating a cognitive perfor-