

human resources can also be undertaken through the use of our method. By determining what percentage of time they are operating with people in an impaired state versus a non-impaired state, various corporate strategies can be designed for personnel needs.

A company can also use this method to decide how many people they would need to hire in a particular situation to ensure adequate staffing with non-alertness impaired individuals.

The methodology can also be used to analyze retrospectively the fatigue risks in any given operation and to reconstruct particular events or accidents to determine the likelihood that fatigue played a role.

The methodology described can also allow for the incorporation of other alertness-modifying stimuli, not yet discovered. The values in the arrays can be changed to allow for new findings, differences between worker populations, greater granularity, etc.

The methodology can be used to interface with existing scheduling programs in such a way as to permit the selection or validation of schedules based on the teachings of this disclosure.

Therefore, as can be seen from the above examples, the methodology which we have developed can be used in a myriad of circumstances where determination of one or more subject's alertness level at a given point in time is desired.

Others can, by applying current knowledge, readily modify and/or adapt this embodiment for various applications without departing from the generic concept, and therefore, such other adaptations and modifications should and are intended to be comprehended within the meaning and range of equivalents of the disclosed invention. For example, the organization and values used in the arrays can be changed to reflect new findings, or differences between worker populations. Other factors may be added, and the weighting given to various factors can be changed. The source of alertness data need not be MSLT-based, but can be from any alertness measurement source now known or which may be developed in the future. Additionally, it is to be understood that the phraseology or terminology used is for the purpose of description and not of limitation. Therefore, the scope of this invention should be determined by the appended claims and their legal equivalents and not by the examples given.

We claim:

1. A method of predicting the alertness of an individual, said method comprising the steps of receiving a plurality of initial alertness data of said individual, adjusting said initial alertness data based upon a plurality of predetermined alertness-modifying stimuli to which said individual is exposed, computing data representative of the predicted alertness level for said individual based upon said adjusting of said initial alertness data, and providing said predicted alertness level data in a processable format, said processable format selected from the group consisting of humanly-sensible and machine-readable formats.

2. The method of claim 1 wherein said receiving said plurality of initial alertness data of said individual comprises receiving a plurality of data selected from the group consisting of age, home time zone, morning/evening tendency, sleep/wake diary data, currently acclimatized shift/sleep schedule, shift/duty times, and rules for probable sleep-wake pattern.

3. The method of claim 1 wherein said adjusting said initial alertness data based upon a plurality of predeter-

mined alertness-modifying stimuli to which said individual is exposed comprises adjusting alertness-modifying stimuli selected from the group consisting of nap, caffeine ingestion, alcohol ingestion, sleep deprivation, sleep restriction, photostimulation, sleep phase, and bright light.

4. The method of claim 1 wherein said providing said predicted alertness level data in a humanly-sensible format consists of providing said data as printed output.

5. The method of claim 1 wherein said providing said predicted alertness level data in a machine-readable format consists of providing said data as electronic impulses.

6. A method for determining the bio-compatibility of a given work schedule for an individual, said method comprising the steps of receiving a plurality of initial alertness data of said individual, adjusting said initial alertness data based upon a plurality of predetermined alertness-modifying stimuli to which said individual is exposed, computing modified alertness data for said individual based upon said adjustments to said initial alertness data, determining the bio-compatibility of said work schedule by comparing said modified alertness data during said proposed work schedule to a minimum acceptable alertness level, and supplying said determination in a processable format, said processable format selected from the group consisting of humanly-sensible and machine-readable formats.

7. The method of claim 6 wherein said receiving said plurality of initial alertness data of said individual comprises receiving a plurality of data selected from the group consisting of age, home time zone, morning/evening tendency, sleep/wake diary data, currently acclimatized shift/sleep schedule, shift/duty times, and rules for probable sleep-wake pattern.

8. The method of claim 6 wherein said adjusting said initial alertness data based upon a plurality of predetermined alertness-modifying stimuli to which said individual is exposed comprises adjusting alertness-modifying stimuli selected from the group consisting of nap, caffeine ingestion, alcohol ingestion, sleep deprivation, sleep restriction, photostimulation, sleep phase, and bright light.

9. The method of claim 6 wherein said supplying said determination in a humanly-sensible format consists of supplying said determination as printed output.

10. The method of claim 6 wherein said supplying said determination in a machine-readable format consists of supplying said determination as electronic impulses.

11. The method for selecting a bio-compatible work schedule for an individual, said method comprising the steps of receiving initial alertness data of said individual, receiving at least one proposed schedule for said individual, adjusting said initial alertness data based upon a plurality of predetermined alertness-modifying stimuli to which said individual is exposed, computing modified alertness data for said individual based upon said adjusting of said initial alertness data, selecting said bio-compatible work schedule based on said modified alertness data, and supplying said selection determination in a processable format, said processable format selected from the group consisting of humanly-sensible and machine-readable formats.

12. The method of claim 11 wherein said receiving said plurality of initial alertness data of said individual comprises receiving a plurality of data selected from the group consisting of age, home time zone, morning/ev-