

of the difference in time lag among individuals.

[0005] Note that, while the discussion above casts light on the relationship between exercise and its effect, a similar time lag may be observed between the period when activities other than exercise (such as eating and sleeping) that may affect health (biological indexes) are conducted and the period when its effects appear.

[0006] The present invention has been made in view of the circumstances described above, its object being to provide a technique for enabling health monitoring assistance that takes account of a time lag between an activity and appearance of its effect. A further object of the present invention is to provide a technique for presenting a causal relationship between an activity conducted by a subject and its effect in an accessible manner despite possible differences among individuals in the amount of time lag between activity and effect, so as to keep the person motivated to carry on the activity.

Solution to Problem

[0007] The invention according to claim 1 is
a health monitoring assist system, including:

an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating

to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit.

[0008] A "biological index" here refers to an indicator relating to a person's health measured from a person or samples collected from a person. Examples of biological indexes include blood pressure, pulse, body weight, body fat percentage, body fat mass, muscle percentage, muscle mass, abdominal girth, BMI, cholesterol level, blood glucose level, urinary glucose level, body temperature, and so on. An "activity" is a movement or behavior that may affect health (biological index). While exercises such as walking, jogging, and swimming are regarded as typical activities, other physical activities in everyday life other than exercises (such as commuting and household chores), as well as sleeping, resting, eating, taking/administering medicine, and taking supplements, are also considered as activities. An "activity index" indicates a quantified amount of an activity, and

may be, for example, a number of steps, distance, duration of exercise, amount of exercise (calories burned), amount of activity (intensity of exercise multiplied by time), sleeping duration, duration or number of rest, calories taken, dosage of medicine, amount of supplements taken, and so on.

[0009] According to the invention set forth in claim 1, an amount of time lag between a change in an activity index and a resultant change appearing in a biological index is estimated, and based on this estimation result, a subject is provided with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted. Therefore, health monitoring assistance that takes into account a time lag between activity and effect is made possible. In addition, since the time lag between activity and effect is estimated with the use of activity index and biological index data of the subject him/herself, a causal relationship between an activity conducted by the subject and its effect can be presented in an accessible manner despite the difference in the amount of time lag among individuals, so that the person can be kept motivated to carry on the activity.

[0010] The invention according to claim 2 is

a health monitoring assist system according to claim 1, wherein the assist information includes information indicative of the amount of time lag.

[0011] According to the invention set forth in claim 2, the

subject can be made aware of his intrinsic physiological characteristics that show how much the appearance of an effect of his activity is delayed. Accordingly, the subject can realize what changes in the biological index he/she should compare with the increase or decrease of the activity index, and check the fruits of past activities or notice deterioration of the biological index caused by laziness. Also, the subject will be able to monitor his health (such as planning an exercise, setting a weight loss goal, or deciding dosage of medicine or timing of taking medicine) in consideration of his own physiological characteristics.

[0012] The invention according to claim 3 is

a health monitoring assist system according to claim 1 or 2, wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

[0013] According to the invention set forth in claim 3, the subject can intuitively understand the causal relationship between an increase/decrease of the activity index and a change in the biological index by visually comparing two graphs.

[0014] The invention according to claim 4 is

a health monitoring assist system according to any one of claims 1 to 3, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a positive change caused by an increase in the activity index is apparent in the biological index.

[0015] According to the invention set forth in claim 4, the subject can easily grasp that an increase in the activity index (e.g., past effort) directly leads to a positive change in the biological index (e.g., health improvement), so that the person can be motivated to carry out and continue to do the activity.

[0016] The invention according to claim 5 is

a health monitoring assist system according to any one of claims 1 to 4, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a negative change caused by a decrease in the activity index is apparent in the biological index.

[0017] According to the invention set forth in claim 5, the subject can easily grasp that a decrease in the activity index (e.g., past laziness) directly leads to a negative change in the biological index (e.g., health deterioration). This way, the subject can be encouraged to reflect upon him/herself and reminded of the necessity of doing the activity continuously.

[0018] The invention according to claim 6 is

a health monitoring assist system according to any one of claims 1 to 5, wherein the time lag estimation unit evaluates intensity of a causal correlation between the time-series data of the activity index and the time-series data of the biological index with respect to a plurality of amounts of time lag, and selects an amount of time lag with which the intensity of the correlation is highest as the amount of time lag between the change in the activity index and the resultant change appearing in the biological

index.

[0019] According to the invention set forth in claim 6, the amount of time lag between an increase/decrease in the activity index and a change in the biological index can be determined suitably.

[0020] The invention according to claim 7 is
a health monitoring assist system according to claim 6, wherein the time lag estimation unit evaluates the intensity of the causal correlation between the time-series data of the activity index and the time-series data of the biological index with the use of transfer entropy.

[0021] According to the invention set forth in claim 7, the intensity of the causal correlation between the activity index (cause) and the biological index (result) is evaluated with the use of transfer entropy, so that the amount of time lag between an increase/decrease in the activity index and a change in the biological index can be determined more suitably.

[0022] The invention according to claim 8 is
a health monitoring assist system according to any one of claims 1 to 7, wherein the information presentation unit presents the assist information to a terminal owned by the subject by wired or wireless connection.

[0023] According to the invention set forth in claim 8, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is

convenient. Health monitoring assist services using the so-called cloud computing may also be provided by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet.

[0024] The invention according to claim 9 is

a terminal capable of communicating with the health monitoring assist system according to claim 8 by wired or wireless connection, including:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

[0025] According to the invention set forth in claim 9, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is convenient. Health monitoring assist services using the so-called cloud computing may also be enjoyed by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet. Since there is no need for the terminal to store activity index data and biological index data, or to calculate the time lag or produce assist information, the terminal can be configured simply, and the terminal cost can be reduced.

[0026] The invention according to claim 10 is

a terminal according to claim 9, further including a data transmission unit that transmits data of an activity index of an activity conducted by the subject and/or data of a biological index measured from the subject to the health monitoring assist system.

[0027] According to the invention set forth in claim 10, data collection and management in the health monitoring assist system can be achieved easily.

[0028] The invention according to claim 11 is

a terminal according to claim 9 or 10, further including a measurement unit that measures the activity index.

[0029] According to the invention set forth in claim 11, a single terminal can function as an activity index measurement device as well as a device that provides the health monitoring assist information, which is convenient.

[0030] The invention according to claim 12 is

a terminal according to claim 9 or 10, further including a measurement unit that measures the biological index.

[0031] According to the invention set forth in claim 12, a single terminal can function as a biological index measurement device as well as a device that provides the health monitoring assist information, which is convenient.

[0032] The invention according to claim 13 is

a program that makes a computer function as:

an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit.

[0033] According to the invention set forth in claim 13, a system that estimates an amount of time lag between a change in an activity index and a resultant change appearing in a biological index, and, based on this estimation result, provides a subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, can be realized. This system can provide health monitoring assistance that takes into account a time lag between activity and effect. In addition, since the amount of time lag between activity and effect is estimated with the use of activity index and biological index data of the subject him/herself, a causal

relationship between an activity conducted by the subject and its effect can be presented in an accessible manner despite the difference in the amount of time lag among individuals, so that the person can be kept motivated to carry on the activity.

[0034] The invention according to claim 14 is

a program that makes a terminal capable of communicating with the health monitoring assist system according to claim 8 by wired or wireless connection function as:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

[0035] According to the invention set forth in claim 14, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is convenient. Health monitoring assist services using the so-called cloud computing may also be enjoyed by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet. Since there is no need for the terminal to store activity index data and biological index data, or to calculate the amount of time lag or produce assist information, the terminal can be configured simply, and the terminal cost can be reduced.

CLAIMS

1. A health monitoring assist system, comprising:
an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit.

2. The health monitoring assist system according to claim 1, wherein the assist information includes information indicative of the amount of time lag.

3. The health monitoring assist system according to claim

1 or 2, wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

4. The health monitoring assist system according to any one of claims 1 to 3, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a positive change caused by an increase in the activity index is apparent in the biological index.

5. The health monitoring assist system according to any one of claims 1 to 4, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a negative change caused by a decrease in the activity index is apparent in the biological index.

6. The health monitoring assist system according to any one of claims 1 to 5, wherein the time lag estimation unit evaluates intensity of a causal correlation between the time-series data of the activity index and the time-series data of the biological index with respect to a plurality of amounts of time lag, and selects an amount of time lag with which the intensity of a correlation is highest as the amount of time lag between the change in the

activity index and the resultant change appearing in the biological index.

7. The health monitoring assist system according to claim 6, wherein the time lag estimation unit evaluates the intensity of the causal correlation between the time-series data of the activity index and the time-series data of the biological index with use of transfer entropy.

8. The health monitoring assist system according to any one of claims 1 to 7, wherein the information presentation unit presents the assist information to a terminal owned by the subject by wired or wireless connection.

9. A terminal capable of communicating with the health monitoring assist system according to claim 8 by wired or wireless connection, comprising:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

10. The terminal according to claim 9, further comprising a data transmission unit that transmits data of an activity index of an activity conducted by the subject and/or data of a biological

index measured from the subject to the health monitoring assist system.

11. The terminal according to claim 9 or 10, further comprising a measurement unit that measures the activity index.

12. The terminal according to claim 9 or 10, further comprising a measurement unit that measures the biological index.

13. A program that makes a computer function as:
an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag

estimation unit.

14. A program that makes a terminal capable of communicating with the health monitoring assist system according to claim 8 by wired or wireless connection function as:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

of the difference in time lag among individuals.

[0005] Note that, while the discussion above casts light on the relationship between exercise and its effect, a similar time lag may be observed between the period when activities other than exercise (such as eating and sleeping) that may affect health (biological indexes) are conducted and the period when its effects appear.

[0006] The present invention has been made in view of the circumstances described above, its object being to provide a technique for enabling health monitoring assistance that takes account of a time lag between an activity and appearance of its effect. A further object of the present invention is to provide a technique for presenting a causal relationship between an activity conducted by a subject and its effect in an accessible manner despite possible differences among individuals in the amount of time lag between activity and effect, so as to keep the person motivated to carry on the activity.

Solution to Problem

[0007] The invention is defined in the independent claims. Some optional features of the invention are defined in the dependent claims.

[0008] The invention according to claim 1 is
a health monitoring assist system, including:
an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit,

wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

[0009] A "biological index" here refers to an indicator relating to a person's health measured from a person or samples collected from a person. Examples of biological indexes include blood pressure, pulse, body weight, body fat percentage, body fat mass, muscle percentage, muscle mass, abdominal girth, BMI, cholesterol level, blood glucose level, urinary glucose level, body temperature, and so on. An "activity" is a movement or behavior that may affect health (biological index). While exercises such as walking, jogging, and swimming are regarded as typical

activities, other physical activities in everyday life other than exercises (such as commuting and household chores), as well as sleeping, resting, eating, taking/administering medicine, and taking supplements, are also considered as activities. An "activity index" indicates a quantified amount of an activity, and may be, for example, a number of steps, distance, duration of exercise, amount of exercise (calories burned), amount of activity (intensity of exercise multiplied by time), sleeping duration, duration or number of rest, calories taken, dosage of medicine, amount of supplements taken, and so on.

[0010] According to the invention set forth in claim 1, an amount of time lag between a change in an activity index and a resultant change appearing in a biological index is estimated, and based on this estimation result, a subject is provided with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted. Therefore, health monitoring assistance that takes into account a time lag between activity and effect is made possible. In addition, since the time lag between activity and effect is estimated with the use of activity index and biological index data of the subject him/herself, a causal relationship between an activity conducted by the subject and its effect can be presented in an accessible manner despite the difference in the amount of time lag among individuals, so that the person can be kept motivated to carry on the activity.

[0011] According to the invention set forth in claim 1, the

subject may intuitively understand the causal relationship between an increase/decrease of the activity index and a change in the biological index by visually comparing two graphs.

[0012] The invention according to claim 2 is

 a health monitoring assist system according to claim 1, wherein the assist information includes information indicative of the amount of time lag.

[0013] According to the invention set forth in claim 2, the subject can be made aware of his intrinsic physiological characteristics that show how much the appearance of an effect of his activity is delayed. Accordingly, the subject can realize what changes in the biological index he/she should compare with the increase or decrease of the activity index, and check the fruits of past activities or notice deterioration of the biological index caused by laziness. Also, the subject will be able to monitor his health (such as planning an exercise, setting a weight loss goal, or deciding dosage of medicine or timing of taking medicine) in consideration of his own physiological characteristics.

[0014] The invention according to claim 3 is

 a health monitoring assist system according to any one of claims 1 or 2, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a positive change caused by an increase in the activity index is apparent in the biological index.

[0015] According to the invention set forth in claim 3, the subject can easily grasp that an increase in the activity index

(e.g., past effort) directly leads to a positive change in the biological index (e.g., health improvement), so that the person can be motivated to carry out and continue to do the activity.

[0016] The invention according to claim 4 is

a health monitoring assist system according to any one of claims 1 to 3, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a negative change caused by a decrease in the activity index is apparent in the biological index.

[0017] According to the invention set forth in claim 4, the subject can easily grasp that a decrease in the activity index (e.g., past laziness) directly leads to a negative change in the biological index (e.g., health deterioration). This way, the subject can be encouraged to reflect upon him/herself and reminded of the necessity of doing the activity continuously.

[0018] The invention according to claim 5 is

a health monitoring assist system according to any one of claims 1 to 4, wherein the time lag estimation unit evaluates intensity of a causal correlation between the time-series data of the activity index and the time-series data of the biological index with respect to a plurality of amounts of time lag, and selects an amount of time lag with which the intensity of the correlation is highest as the amount of time lag between the change in the activity index and the resultant change appearing in the biological index.

[0019] According to the invention set forth in claim 5, the amount of time lag between an increase/decrease in the activity

index and a change in the biological index can be determined suitably.

[0020] The invention according to claim 6 is

a health monitoring assist system according to claim 5, wherein the time lag estimation unit evaluates the intensity of the causal correlation between the time-series data of the activity index and the time-series data of the biological index with the use of transfer entropy.

[0021] According to the invention set forth in claim 6, the intensity of the causal correlation between the activity index (cause) and the biological index (result) is evaluated with the use of transfer entropy, so that the amount of time lag between an increase/decrease in the activity index and a change in the biological index can be determined more suitably.

[0022] The invention according to claim 7 is

a health monitoring assist system according to any one of claims 1 to 6, wherein the information presentation unit presents the assist information to a terminal owned by the subject by wired or wireless connection.

[0023] According to the invention set forth in claim 7, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is convenient. Health monitoring assist services using the so-called cloud computing may also be provided by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet.

[0024] The invention according to claim 8 is

a terminal capable of communicating with the health monitoring assist system according to claim 7 by wired or wireless connection, including:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

[0025] According to the invention set forth in claim 8, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is convenient. Health monitoring assist services using the so-called cloud computing may also be enjoyed by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet. Since there is no need for the terminal to store activity index data and biological index data, or to calculate the time lag or produce assist information, the terminal can be configured simply, and the terminal cost can be reduced.

[0026] The invention according to claim 9 is

a terminal according to claim 8, further including a data transmission unit that transmits data of an activity index of an activity conducted by the subject and/or data of a biological index measured from the subject to the health monitoring assist system.

[0027] According to the invention set forth in claim 9, data

collection and management in the health monitoring assist system can be achieved easily.

[0028] The invention according to claim 10 is

a terminal according to claim 8 or 9, further including a measurement unit that measures the activity index.

[0029] According to the invention set forth in claim 10, a single terminal can function as an activity index measurement device as well as a device that provides the health monitoring assist information, which is convenient.

[0030] The invention according to claim 11 is

a terminal according to claim 8 or 9, further including a measurement unit that measures the biological index.

[0031] According to the invention set forth in claim 11, a single terminal can function as a biological index measurement device as well as a device that provides the health monitoring assist information, which is convenient.

[0032] The invention according to claim 12 is

a program that makes a computer function as:

an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison

between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit,

wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

[0033] According to the invention set forth in claim 12, a system that estimates an amount of time lag between a change in an activity index and a resultant change appearing in a biological index, and, based on this estimation result, provides a subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, can be realized. This system can provide health monitoring assistance that takes into account a time lag between activity and effect. In addition, since the amount of time lag between activity and effect is estimated with the use of activity index and biological index data of the subject him/herself, a causal relationship between an activity conducted by the subject and its effect can be presented in an accessible manner despite the difference in the amount of time lag among individuals, so that

the person can be kept motivated to carry on the activity.

[0034] The invention according to claim 13 is

a program that makes a terminal capable of communicating with the health monitoring assist system according to claim 7 by wired or wireless connection function as:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

[0035] According to the invention set forth in claim 13, the subject can check the causal relationship between an increase/decrease in the activity index and a change in the biological index in the terminal the person owns, which is convenient. Health monitoring assist services using the so-called cloud computing may also be enjoyed by adopting a configuration in which the terminal and the health monitoring assist system are connected via a wide-area network such as the Internet. Since there is no need for the terminal to store activity index data and biological index data, or to calculate the amount of time lag or produce assist information, the terminal can be configured simply, and the terminal cost can be reduced.

CLAIMS

1. A health monitoring assist system, comprising:

an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit,

wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

2. The health monitoring assist system according to claim 1, wherein the assist information includes information indicative of the amount of time lag.

3. The health monitoring assist system according to any one of claims 1 to 2, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a positive change caused by an increase in the activity index is apparent in the biological index.

4. The health monitoring assist system according to any one of claims 1 to 3, wherein the assist information includes information indicating a period, in a graph plotting the time-series data of the biological index, in which a negative change caused by a decrease in the activity index is apparent in the biological index.

5. The health monitoring assist system according to any one of claims 1 to 4, wherein the time lag estimation unit evaluates intensity of a causal correlation between the time-series data of the activity index and the time-series data of the biological index with respect to a plurality of amounts of time lag, and selects an amount of time lag with which the intensity of a correlation is highest as the amount of time lag between the change in the activity index and the resultant

change appearing in the biological index.

6. The health monitoring assist system according to claim 5, wherein the time lag estimation unit evaluates the intensity of the causal correlation between the time-series data of the activity index and the time-series data of the biological index with use of transfer entropy.

7. The health monitoring assist system according to any one of claims 1 to 6, wherein the information presentation unit presents the assist information to a terminal owned by the subject by wired or wireless connection.

8. A terminal capable of communicating with the health monitoring assist system according to claim 7 by wired or wireless connection, comprising:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.

9. The terminal according to claim 8, further comprising a data transmission unit that transmits data of an activity index of an activity conducted by the subject and/or

data of a biological index measured from the subject to the health monitoring assist system.

10. The terminal according to claim 8 or 9, further comprising a measurement unit that measures the activity index.

11. The terminal according to claim 8 or 9, further comprising a measurement unit that measures the biological index.

12. A program that makes a computer function as:

an activity index data acquisition unit that acquires time-series data of an activity index indicative of an amount of an activity conducted by a subject;

a biological index data acquisition unit that acquires time-series data of a biological index measured from, and relating to health of, the subject;

a time lag estimation unit that estimates an amount of time lag between a change in the activity index and a resultant change appearing in the biological index based on a result of comparison between the time-series data of the activity index and the time-series data of the biological index; and

an information presentation unit that provides the subject with assist information that indicates that an effect caused by the activity of the subject is apparent in a value

of the biological index after the amount of time lag from a time point when the activity was conducted, based on an estimation result of the time lag estimation unit,

wherein the assist information includes a graph plotting the time-series data of the activity index and shifted by the amount of time lag, and a graph plotting the time-series data of the biological index.

13. A program that makes a terminal capable of communicating with the health monitoring assist system according to claim 7 by wired or wireless connection function as:

a request unit that transmits a request for assist information to the health monitoring assist system together with information for identifying the subject who owns the terminal; and

a display unit that displays the assist information received from the health monitoring assist system.