

CLAIMS

1. A biological monitoring device comprising:
 - a biological information measurement unit that measures biological information
 - 5 of a monitoring target for each predetermined cycle;
 - a biological information holding unit that holds time series data of the biological information measured by the biological information measurement unit;
 - a dispersion degree calculation unit that calculates a dispersion degree of the biological information in a predetermined measurement period, with reference to the time
 - 10 series data held in the biological information holding unit;
 - a divergence degree calculation unit that calculates, for evaluation biological information which is the biological information measured by the biological information measurement unit at a predetermined time point after the measurement period, a divergence degree of the evaluation biological information at the predetermined time
 - 15 point from a dispersion tendency of past biological information in the measurement period, based on the dispersion degree; and
 - an abnormality determination unit that determines that the monitoring target is in an abnormal state, in a case where the divergence degree is greater than or equal to a predetermined level .
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2. The biological monitoring device according to claim 1, wherein the dispersion degree calculation unit calculates a standard deviation of the biological information in the measurement period, as the dispersion degree, and
 - wherein the divergence degree calculation unit calculates, as the divergence
 - 25 degree, a value obtained by replacing the evaluation biological information with a deviation value of the biological information in the measurement period, using the standard deviation and an average value of the biological information in the measurement period.

3. The biological monitoring device according to claim 1 or 2, wherein the predetermined time point is a measurement point in time of the biological information in a most recent predetermined cycle, and the measurement period is a period of past several cycles from a predetermined cycle immediately preceding the most recent predetermined cycle.

4. The biological monitoring device according to claim 1 or 2, wherein the biological information measurement unit measures a plurality of types of biological information,

wherein the biological information holding unit holds time series data of the plurality of types of biological information measured by the biological information measurement unit,

wherein the dispersion degree calculation unit individually calculates a dispersion degree of each of the plurality of types of biological information in the measurement period, with reference to the time series data of the plurality of types of biological information held in the biological information holding unit, and

wherein the divergence degree calculation unit: calculates, for the evaluation biological information of each of the plurality of types at the predetermined time point, a divergence degree of the evaluation biological information from a dispersion tendency of the biological information in the measurement period, based on the dispersion degree, and calculates a weighted average of the calculated divergence degree, as the divergence degree that is compared with the predetermined level by the abnormality determination unit.

5. The biological monitoring device according to any one of claims 1 to 3, wherein the biological information measurement unit measures a heart rate of the monitoring target, as the biological information, and

wherein the abnormality determination unit determines that the monitoring target is in the abnormal state due to paroxysmal atrial fibrillation, in the case where the divergence degree is greater than or equal to the predetermined level.

6. The biological monitoring device according to any one of claims 1 to 3,
wherein the biological information measurement unit measures a respiration
rate of the monitoring target, as the biological information, and

5 wherein the abnormality determination unit determines that the monitoring
target is in the abnormal state due to Cheyne-Stokes respiration, in the case where the
divergence degree is greater than or equal to the predetermined level.

7. The biological monitoring device according to any one of claims 1 to 3,

10 wherein the biological information measurement unit measures a respiration
rate and a posture of the monitoring target, as the biological information, and

wherein the abnormality determination unit determines that the monitoring
target is in the abnormal state due to orthopnea, in the case where the divergence degree
relating to the respiration rate is greater than or equal to the predetermined level and a
15 posture change of the monitoring target is detected from measurement data of the posture.

8. The biological monitoring device according to any one of claims 1 to 3,
wherein the monitoring target is a living organism lying on a bed,

20 wherein the biological information measurement unit measures a movement of
the monitoring target, as the biological information, and

wherein the abnormality determination unit determines that the monitoring
target is in the abnormal state of having a high possibility of falling off the bed, in the
case where the divergence degree is greater than or equal to the predetermined level.

25 9. A biological monitoring program causing a computer to function as:

a biological information measurement unit that measures biological information
of a monitoring target for each predetermined cycle;

a biological information holding unit that holds time series data of the
biological information measured by the biological information measurement unit;

30 a dispersion degree calculation unit that calculates a dispersion degree of the

biological information in a predetermined measurement period, with reference to the time series data held in the biological information holding unit;

5 a divergence degree calculation unit that calculates, for evaluation biological information which is the biological information measured by the biological information measurement unit at a predetermined time point after the measurement period, a divergence degree of the evaluation biological information at the predetermined time point from a dispersion tendency of past biological information in the measurement period, based on the dispersion degree; and

10 an abnormality determination unit that determines that the monitoring target is in an abnormal state, in a case where the divergence degree is greater than or equal to a predetermined level.