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Entropic Principles Of Longevity

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***Abstract*—It is shown that in biophysical systems a stable state is achieved and maintained under the condition of equality of entropic and negentropic characteristics. In relation to this condition, some principles of longevity for living systems are given, and rules for their implementation are given.**

Keywords—principles of longevity, movement, rest, entropy, equilibrium systems.

Introduction

Longevity problems have always been studied and investigated in the world and their results have been considered and applied at different times, though with various degrees of success. The life span has been most rapidly increasing after 1920-s mainly due to more developed medicine (but not only this). In view of this, in recent years scientists have been paying much attention to the development of gene engineering methodology. But there is such a longevity “pill” the effect of which mainly depends on self-organization and rational physiological activity of humans. In this paper such problematic issues are considered from the point of the principles of entropic correlations.

Entropy and longevity

All the phenomena and processes in nature and World, including humans, machinery and ecology, proceed only in two energy directions. Either along the force field gradient with the minimum energy loss, or against the gradient with the maximum energy loss. The first direction corresponds to the notion of entropy, the second — to the notion of negentropy (negative entropy). In the dynamics of processes both phenomena are interconnected and supplement each other.

The heart works this way: work phase (systole) is always accompanied by functionally equal rest phase (diastole). It was determined long ago that in heat processes in an open thermodynamic system the entropy is completely compensated by the negentropy flow. Therefore, the equality or parity correlation of these entropic parameters is the condition of static stability of any system.[1] In non-equilibrium dynamics such entropic correlations are vividly presented in the form of graphs called S-curves (due to their appearance) or life lines (due to their meaning).[2] For example, the curves of functional dependencies of parameters in epidemiologic scenarios.

Other examples:

1. In trade — the rational market price is obtained in the crossing point of supply and demand lines.

2. In economics — parity correlation of different economic systems.

3. In chemical kinetics — Le Chatelier principle.

4. In physics — N. Bohrs complementarity principle.

5. In dialectics — unity and struggle of opposites.

6. In ecology — the amount of carbon dioxide produced should equal the amount of carbon dioxide absorbed.

Two simple common rules should be fulfilled for live systems in view of their longevity and entropic correlations:

1. The amount of calories absorbed should equal the amount of calories spent.

2. The time spent for rest of a human (lying and sitting) should equal the time spent for movement and work.

The type of nutrition is very important but its composition is not always essential. For Russian farmworkers potatoes are the second bread, but where there is labor there are no people with obesity.

Conclusion

This approach is not brand new and the given examples are not single. Thus, thousands of years ago Chinese medicine found out that all phenomena of the world and nature can be considered as the interaction of two opposite geneses — yin and yang. From the point of these ideas, physiotherapy and reflexotherapy can be considered as the methodology of equalizing the potentials of two manifestations of energy geneses, which are the entropy and negentropy in modern concepts.

And the nature today, as before, fulfills its principles. For example, it struggles against viruses by collective immunity. The twentieth century, the century of wars, epidemics and revolutions, brought a lot of human losses. But the population increase rate was the highest in all of the human history.

And it is important and necessary for us to understand them and correctly use such principles in our biophysical philosophy when making the energy exchange in our own lives, whatever difficult such approach would seem.

More information can be found on the authors webpage or on open access in Internet.

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