What is Inflammation?

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In this paper, a new principle is applied to the established scientific concepts of medicine - homeostasis, equilibrium, and inflammation.

The introduction of a new principle - *The Principle of Relations*[1]- gives an alternative interpretation of inflammation, homeostasis, and disease.

The Principle of Relations claims to represent all aspects of reality, including the human body, based on I-III:

I. Requirements for a complete theory:
Every concept has to represent reality directly and concretely.

II. Postulate:
Nothing exists in isolation; everything exists in relations.

III. Basic concepts:
- Mass, denoted by m.
- Relation, denoted by R.

The concept relation relates to reality by showing that there are relations between all parts of reality, aRb, where:

1) **a, b, c** … are any system, subsystem, unit, part in any field of the human body, e.g., organs, cells, organelles, nuclei, atoms and molecules.
2) The relation **R** is a flow of packages, p_{1-n}, e.g., protons, neutrons, electrons, photons, proteins, molecules of fat, and polysaccharides between a, b, and c … in any part of the human body.

The basic model of relations.

Based on the postulate - Nothing exists in isolation; everything exists in relations –in combination with 1 and 2 above, the principle is

$$X = aRb,$$

where **X** is inflammation and disease, such as cancer, cardiac infarction, and dementia.

Between all systems and between all parts of any system, S, there is a continuous flow of packages p_{1-n}, i.e., **R = p_{1-n}**. The formula will be found this

$$S = ap_{1-n}b$$

Flows of packages moves from one system to another system.

The system of the human body consists of flows of packages between different subsystems, i.e., integumentary system, S_i, skeletal system, S_s, muscular system, S_m, nervous system, S_n, endocrine system, S_e, cardiovascular system, S_c, lymphatic system, S_l, respiratory system, S_r, digestive system, S_d, urinary system, S_u and reproductive system, S_{re}.

If S_H stands for the system of the human body, then $S_H = (aRb)^{-\infty}$ consists of S_i, S_s, S_m, S_c, S_l, S_r, S_d, S_u, S_{re}, S_n and S_e, where each S_{1-11} has its own system of R_{1-10}.
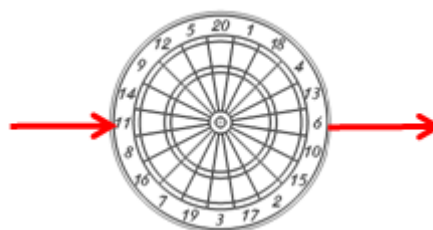
$$S_H = (aRb)^{-\infty} = S_iR_1S_mR_2S_c\ R_3S_lR_4S_rR_5S_dR_6S_uR_7S_{re}R_8S_nR_9S_e R_{10}S_s$$

Based on the postulate and the Principle X = aRb, we can look into the system of the Human Body. With the language of the Principle of Relation, we can summarize the system S, for the human body, H, as $S_H = (aRb)^{-\infty}$.

The absorption of any flow of packages is guided by a *Transformer*, which is *the mechanism that directs and leads packages*, e.g., protons, electrons, photons, and nutrient molecules, within the cells of the human body; as in all parts of the reality of the human body.

Throughout reality, the same principle applies to the mechanism of a Transformer´s function, e.g., the Earth, the Sun, the Moon, the human body, galaxies, atoms, organs, and cells in the Human Body.

Based on the basic model below, we can now imagine how flows are being transformed by the Transformer, in any part of reality.
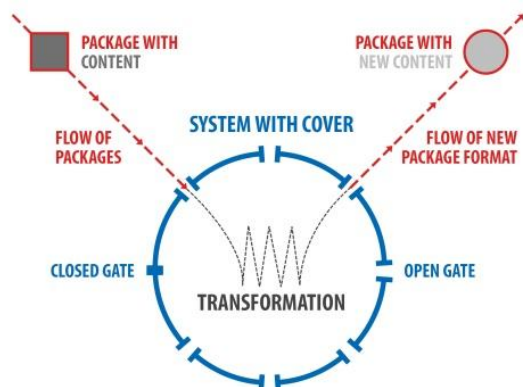

In this paper, the investigation focuses on the most important concepts involved and how they are related:

1) Inflammation and diseases
2) Homeostasis and its diseases
3) Disruption of homeostasis
4) Flow of packages
5) Gates and their opening or not
6) Transformers

Which consequences occur applying the Principle of Relations and the mechanism of Transformer to inflammation and disease?

For each system, there are gates, i.e., the transformation mechanism of the Transformer, where the content of the package is transformed into the next level of reality.
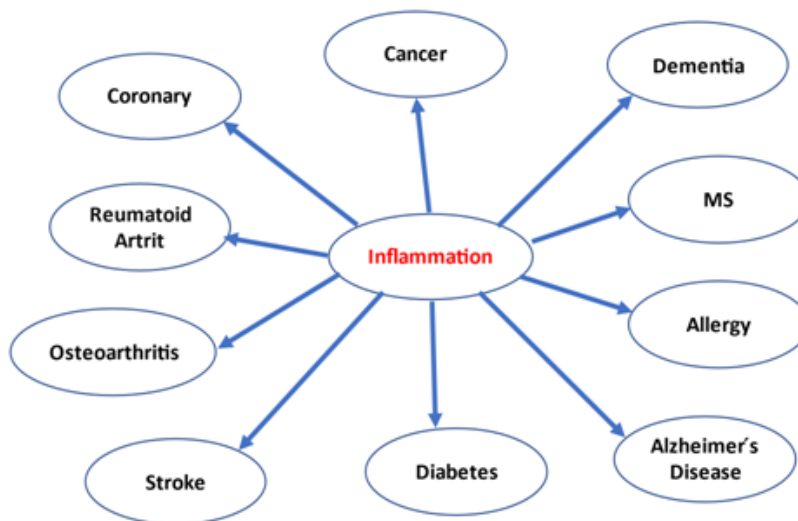

Organs, cells, and organelle changes and diseases occur when R with its package arrives or not, via the "doors", i.e., the gates of cover.

Then behind an inflammation there lies a disordered R. Depending on where the flowblock of R occurs and/or the damaged R occurs, the diseases will be different.

As it seems, chronic inflammation lies behind or at least is connected with diseases such as:

1) Cardiovascular diseases and Heart diseases, e.g. AV-block III and Heart attack.
2) Metabolic diseases, e.g., diabetes and ALD.
3) Neurodegenerative diseases, e.g., MS, ALS, Dementia, Alzheimer´s, Rheumatoid arthritis and Parkinson´s.
4) Depression, e.g., Bipolar disorder and suicide.
5) Cancer, e.g. testicle cancer and brain tumours.

The model below gives an overview:

The hypothesis is that the system of flow dominates causing inflammation, while chronic inflammation causes disease.

First, however, we have to challenge some established concepts, primarily homeostasis, equilibrium and its constant K_{eq}.

Since contemporary science tells that homeostasis and disease have an inversely relationship, then a disease is related to some imbalance in the human body.

Homeostasis means a body in stability and balance or equilibrium. Sometimes with adding dynamics, i.e., dynamic homeostasis and dynamic equilibrium. The net movement must be 0, i.e., what amount goes in must also go out.
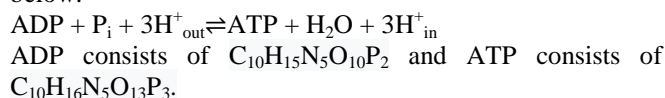
Critical is the direction of the movement.

The reversible reaction, i.e. $\rightleftharpoons$, means equilibrium, i.e., balance and no net change between the components, as explained by the constant K_{eq}.

K_{eq} is the equilibrium constant expressing the ratio of products and reactants at equilibrium.

The meaning is that if a system is not at equilibrium, the system itself will direct moves towards equilibrium.
However, I want tochallenge this notion.

Equations dealing with ATP synthase in contemporary science view ATP synthase as a catalysed reaction, shown as below:
$ADP + P_i + 3H^+_{out} \rightleftharpoons ATP + H_2O + 3H^+_{in}$
ADP consists of $C_{10}H_{15}N_5O_{10}P_2$ and ATP consists of $C_{10}H_{16}N_5O_{13}P_3$.

As we have seen from the Principle of Relations, the concepts flow of packages and Transformers, an alternative explanation is possible, i.e., there exists nothing such as homeostasis and equilibrium.

The body is in a continuous move, where each microsecond and at every moment, the systems of the body moves, sometimes faster and sometimes slower.

Instead of finding the reason for disease in lack of homeostasis, we will find damaged flows in and between cells and organs as the reason for disease.

How, then, concretely, affect a flowblock the occurrence of inflammation leading to a disease?

Based on the principle or relations, P_R, disease will occur when R is broken. A broken R is a disorder behind disease.

The basic questions and statements are:

1) What is the content of R?
2) How is b changed?
3) How is a changed?
4) How does content pass the cover of a and b?
5) When any R, i.e. the continuous flow of package p_{1-n} is broken, disorder and damage will occur.
6) When any R in S_H is broken, there will be disease: cancer, high creatinine, AV-block, Alzheimer´s Disease, kidney failure, stroke, heart attack …
7) How does gate failure affect R and b, i.e. if the doors between R and b are closed and the interface is out of order?

We know that in normal opening and closing of -ion channels, the flow of ions passes through the membrane of a cell. Our first suspicion is that, for some reason, the gate will not open. When transports in and out of the cell are blocked, the transport of molecules, endocytosis, and waste exocytosis, cannot be performed.

Flowblock as a cause of disease

Based on P_R, disease will occur when R is broken. A broken R is a disorder behind diseases, such as:

- AV-block III
- Stroke
- Heart attack and cardiac infarction
- Alzheimer´s disease – AD
- Schizophrenia
- Kidney failure
- Pain, e.g., in spine, bedpan, and muscles
- Cancer.

Flowblock as a cause of Alzheimer´s Disease – AD

The model of Alzheimer´s Disease:

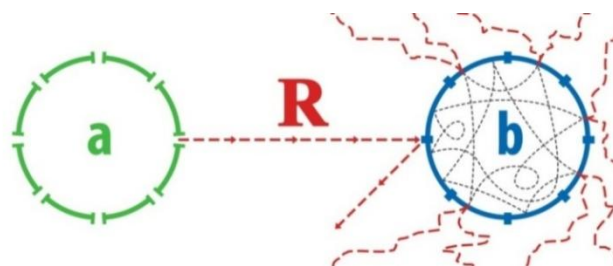Thus far, the factsbased on science, which correspond to the model of aRb, are:

1) Amyloid plaques and neurofibrillary tangles are involved.

2) Loss of neurons and synapses.
3) Inflammation.
4) Lower levels of Neurotrophic factors and the brain-derived neurotrophic factor, BDNF (protein).
5) The activity of the neurotransmitter Alpha-7 nicotinic receptor (protein) is modulated by BDNF.

Flowblock as a cause of cancer

When the gates are closed, no packages can either come in or leave the cell. Then the cell will be destroyed inside and outside it, the packages will be crowded.

When R is damaged, this will happen, as shown by the model over cancer:

The thesis in established science is that damage of DNA causes cancer. However, based on P_R, it is not a genetic disorder that causes and disrupts the cells´ normal functioning, since the genetic disorder, if there is any, at the first point, is caused by a flowblock or damaged R, i.e. damaged flow of packages, in the cell.

Thus, how can a gate recover from inactivity?

Straith to the point

Malfunction flows cause inflammation, which causes disease.

1) How to map, measure, and understand the status of flows?
    1.1. CRP
    1.2. Ion-rate
    1.3. Blood pressure
    1.4. …

2) How to retain all continuous flow in the body?
    1.5. Life style 1-2-3 …
    1.6. "Drugs" via nano?
    1.7. …

Now, the difficult search for the answers.

How to cure inflammation?

Based on aRb, the flow must function again. It can be done by exercise, hard exercise. Then the blood system will, over time, build new vessels occurring in the bloodstream and take away blocks.

To be continued …

Notes

1. The theory was first published by Cambridge Scholars Publishing: *The Principle of Relations*. 2018. The theory has been developed in the book *The Theoretical Foundation of Physical Reality*, authorHOUSE, 2020. Then the book *Reality and the Paradigm of Relations* was published 2021 by Nova Science Publisher in New York.