

# Quantum-chaotic aspects of QBS

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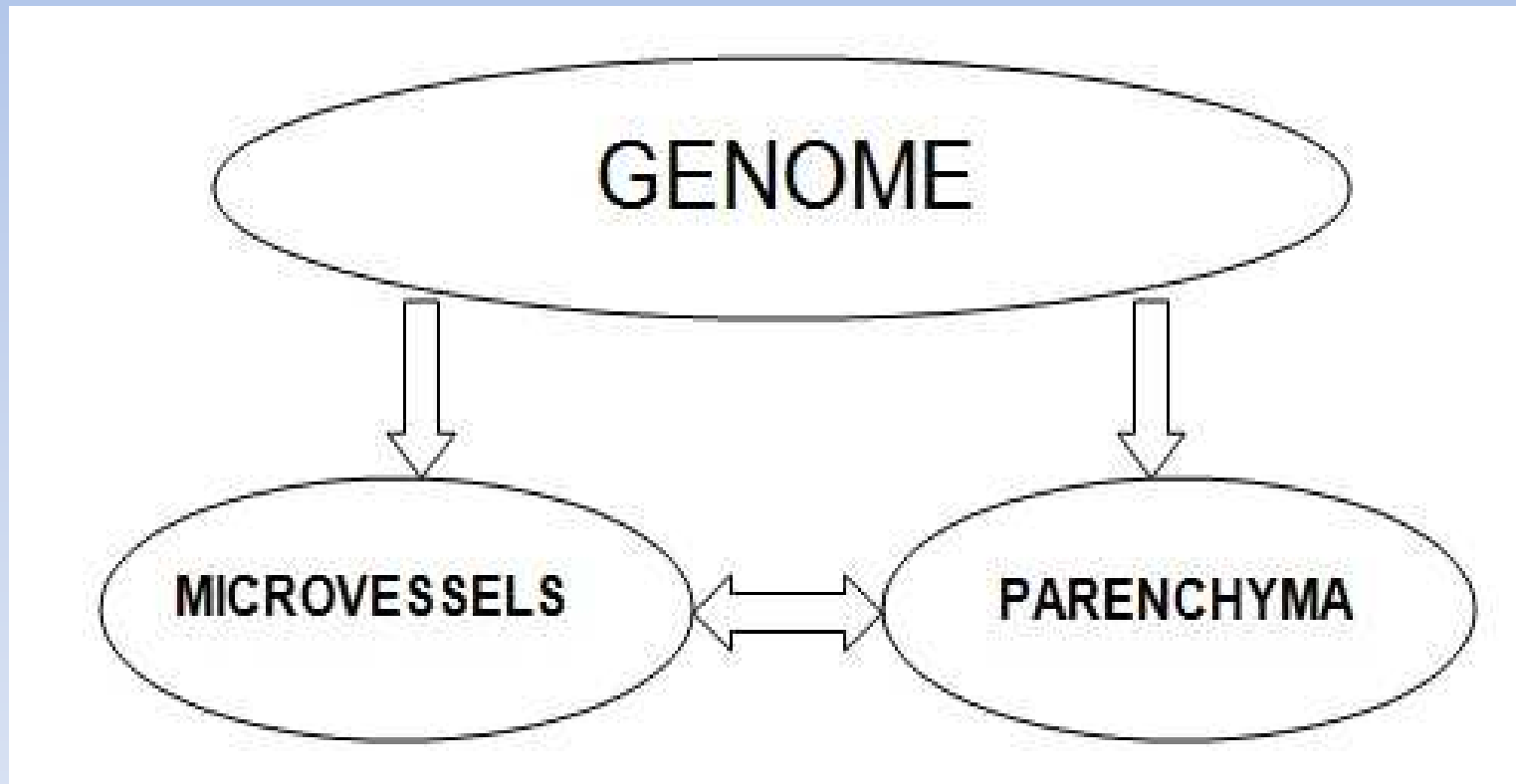
# QUANTUM BIOPHYSICAL SEMEIOTICS

- An **extension** of classical semeiotics
- ..allows the doctors to **interpret** the **signals of the bodies** in order to detect pathologies and diseases

# QUANTUM BIOPHYSICAL SEMEIOTICS

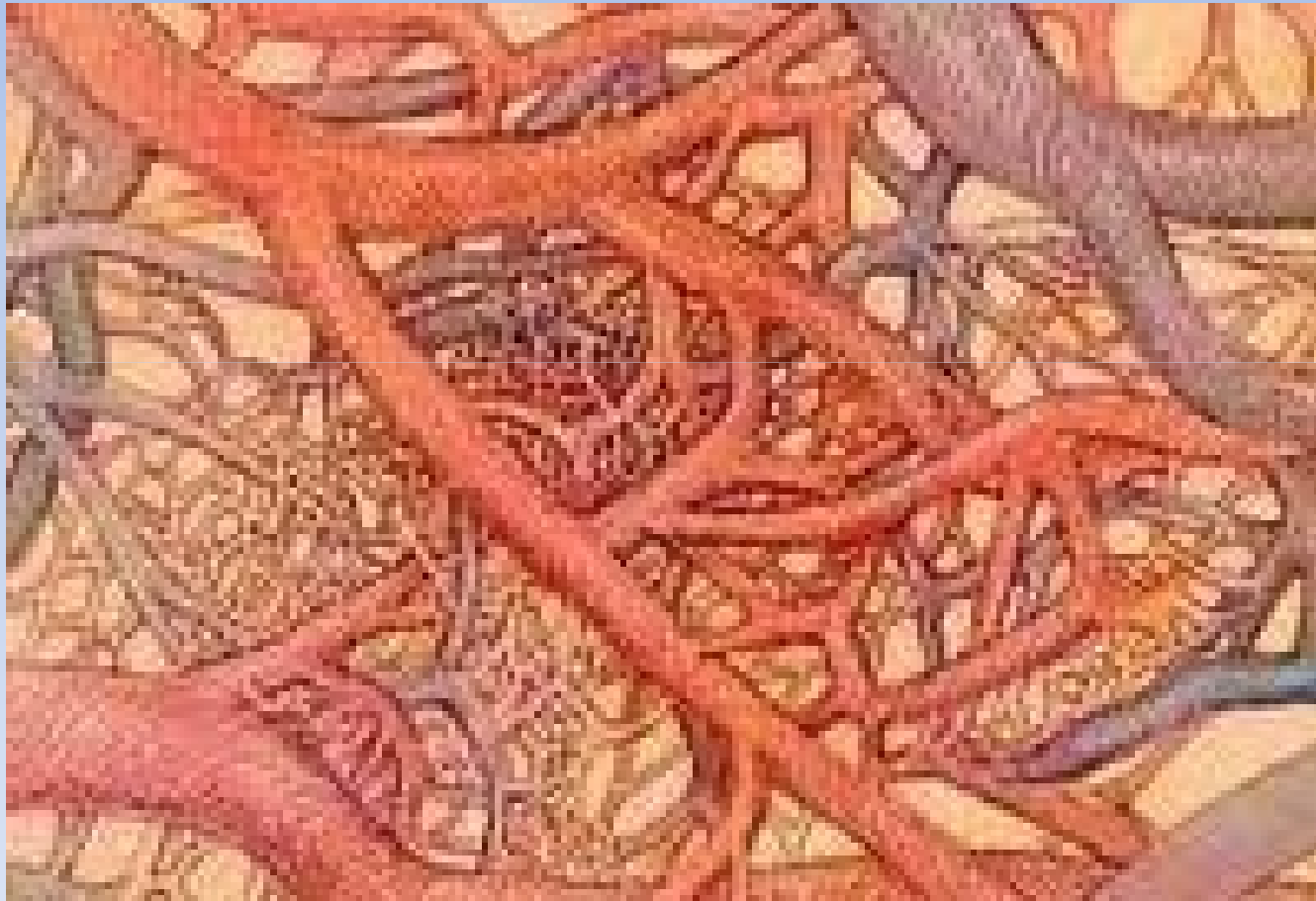
- **Chaotic aspects**
- **Quantum aspects**

# QUANTUM BIOPHYSICAL SEMEIOTICS

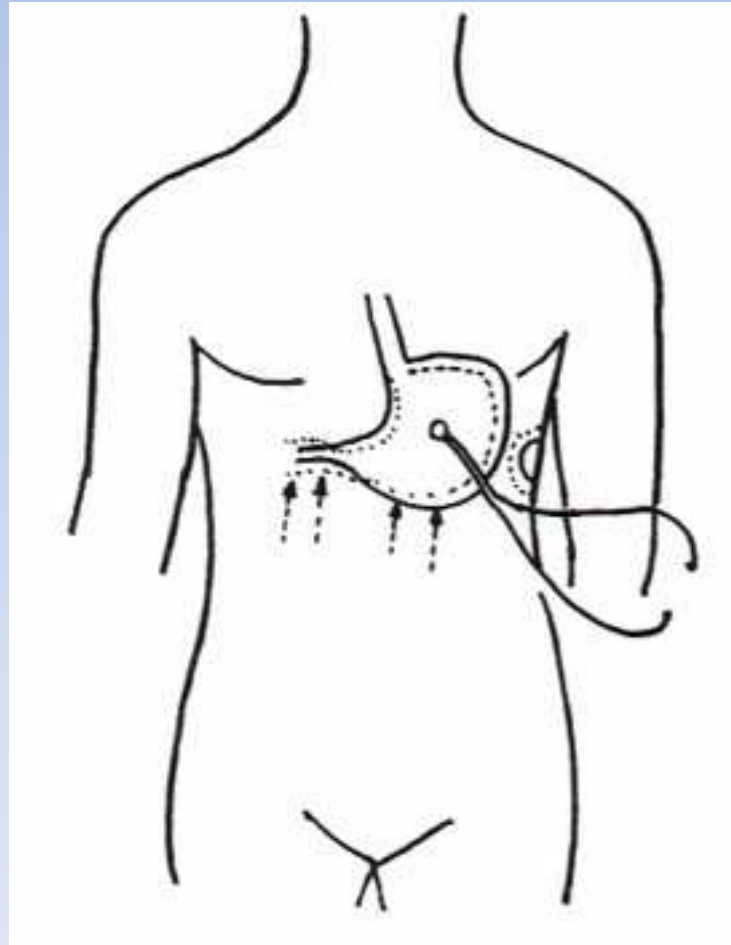


# MICRO-VESSELS

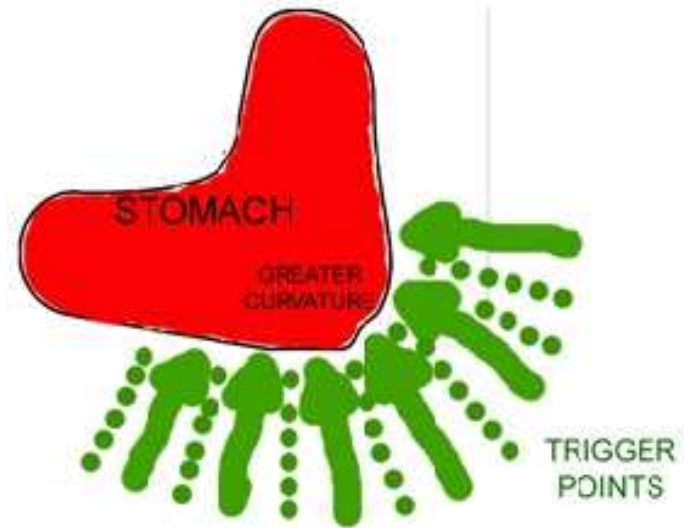
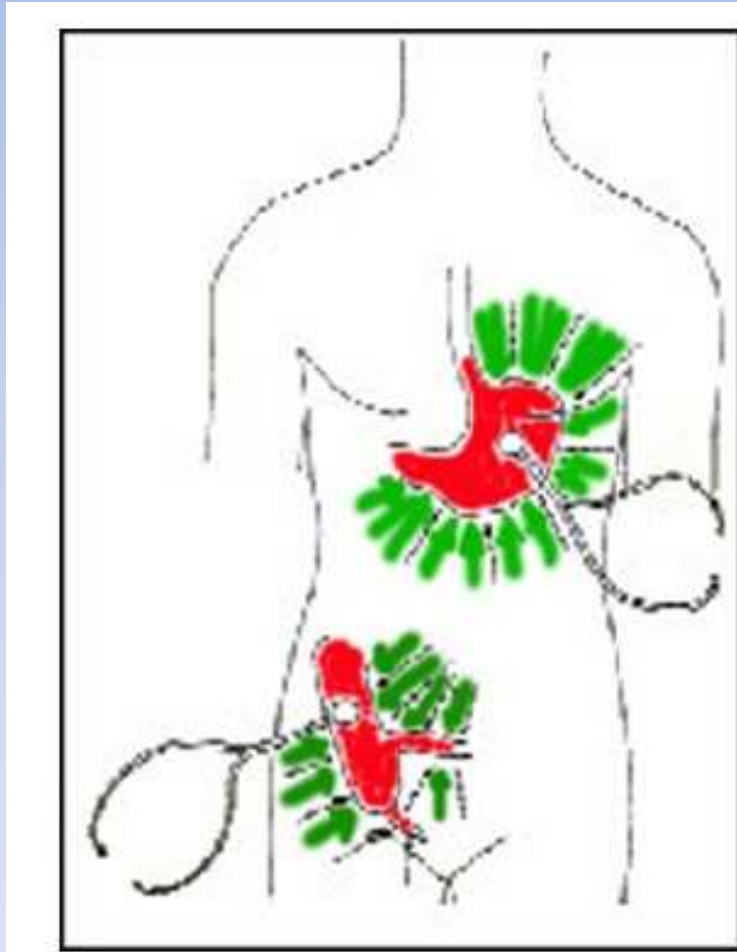
CHAOTIC BEHAVIOR



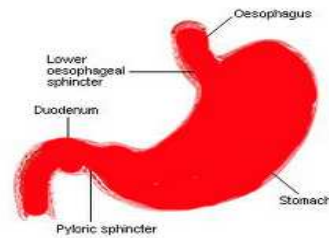
# AUSCULTATORY PERCUSSION



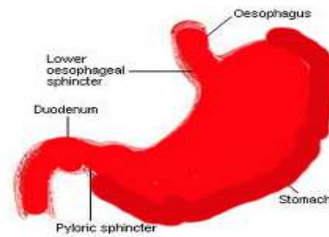
# TRIGGER POINTS



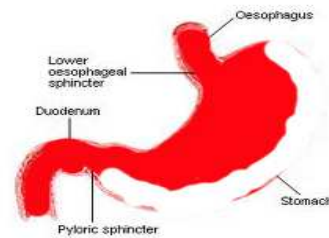
# DILATATION OF STOMACH



normal  
stomach at rest



dilation of  
stomach



contraction of  
stomach

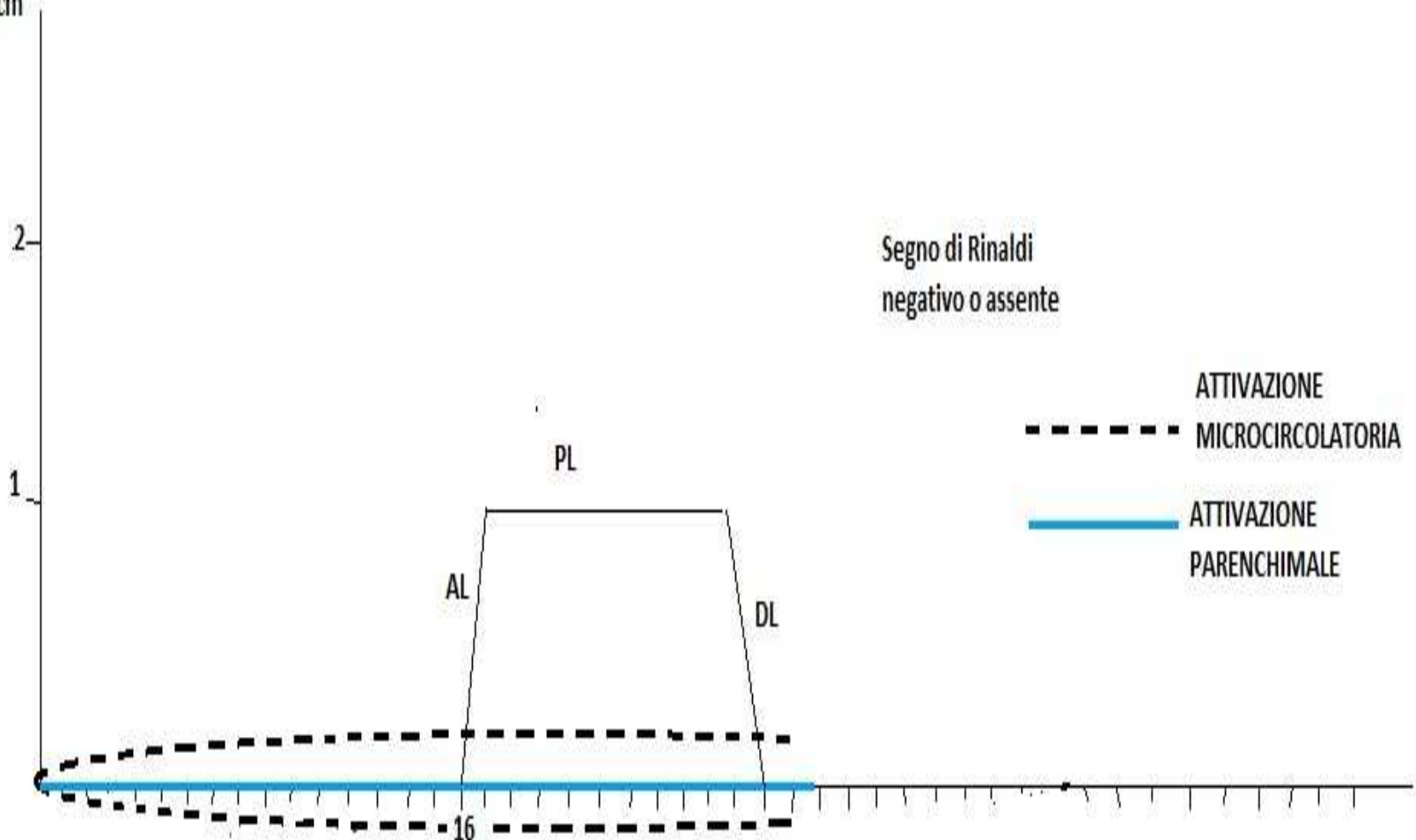


# ASPECIFIC GASTRIC REFLEXES

- Latency (in seconds)
- Duration (in seconds)
- Intensity (in cm)

intensity in cm

I  
N  
T  
E  
N  
S  
I  
T  
Y



Segno di Rinaldi  
negativo o assente

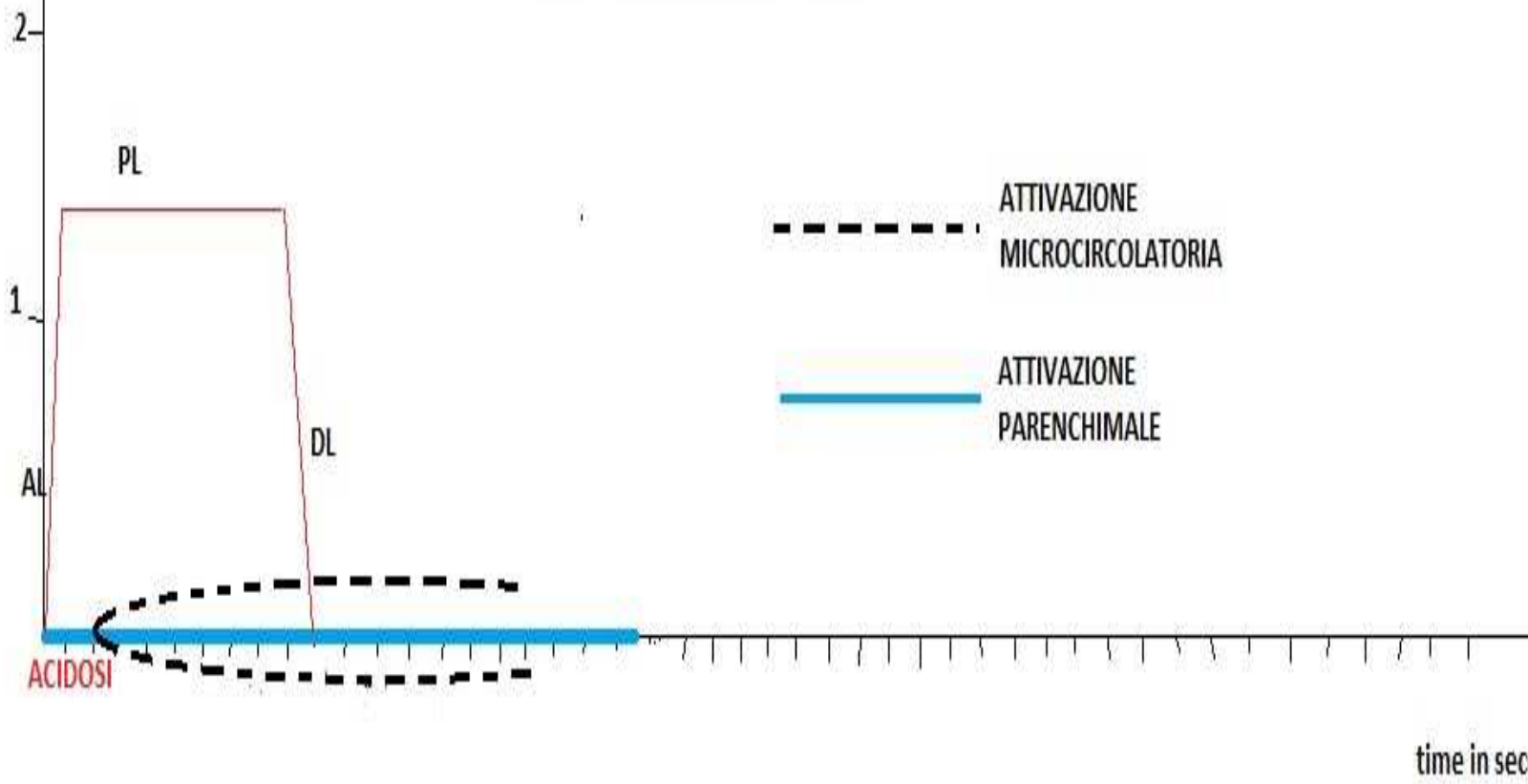
- ATTIVAZIONE MICROCIRCOLATORIA
- ATTIVAZIONE PARENCHIMALE

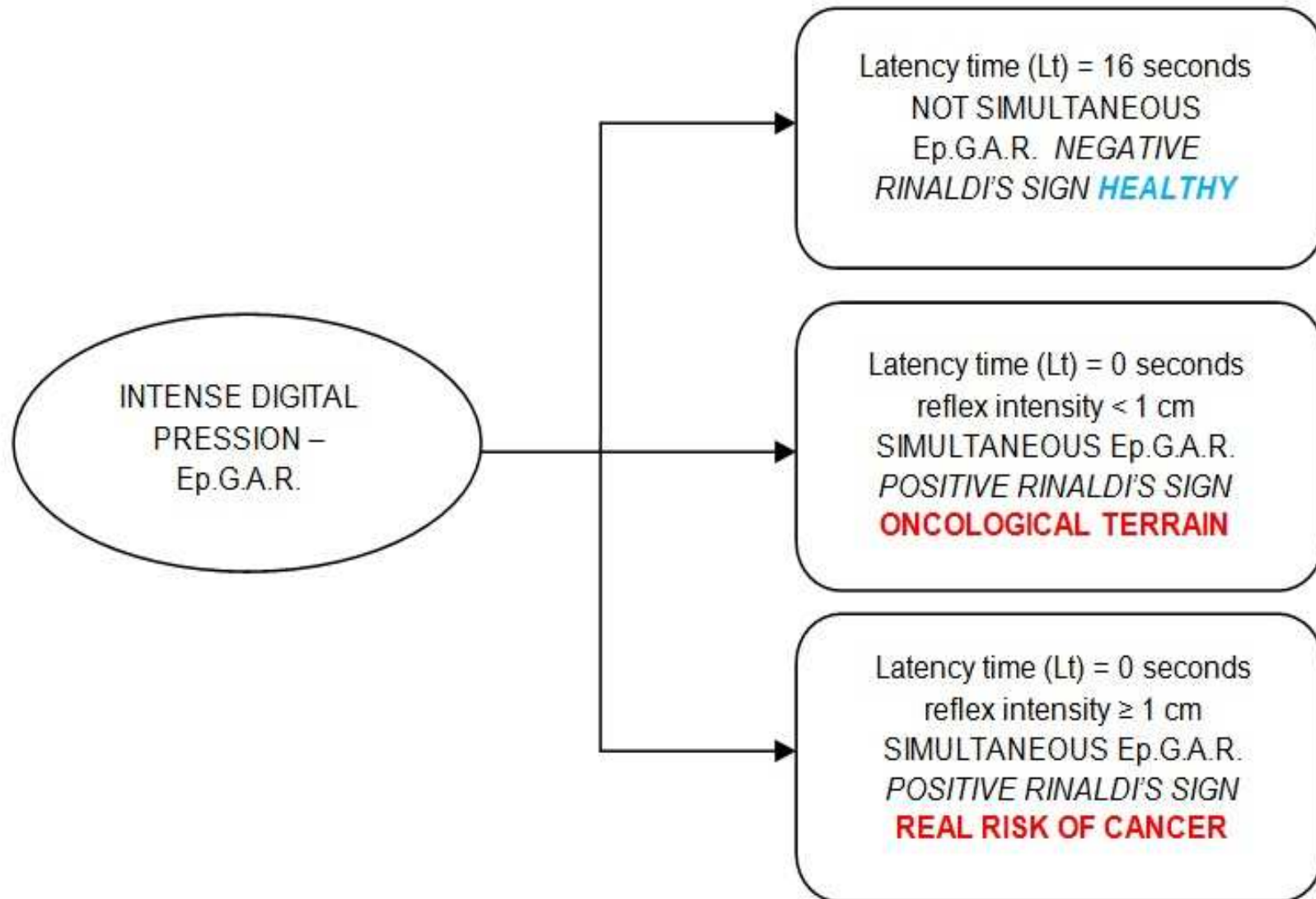
LATENCY TIME      DURATION

time in seconds

intensity in cm

Segno di Rinaldi positivo  
presenza di Terreno Oncologico





# DETERMINISTIC CHAOS

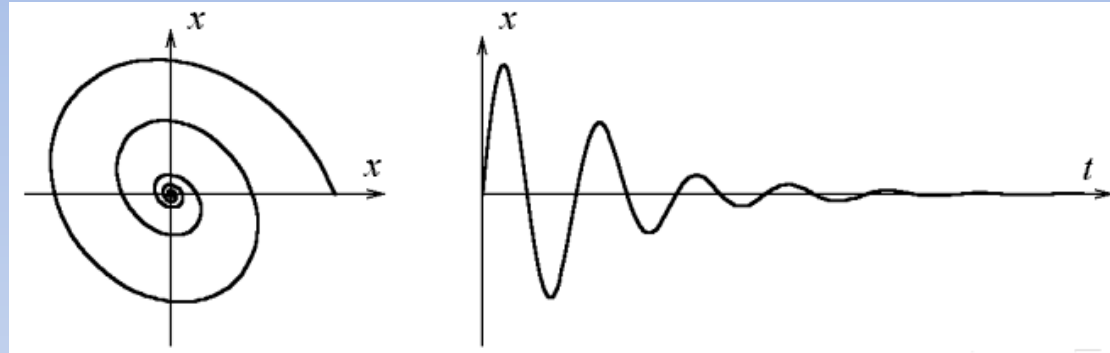
- **Complex order**
- **Dissipative systems (consistency)**
- **Non – linearity**
- **SDIC**
- **Unpredictability**
- **Uncertainty**

# DYNAMICAL SYSTEMS

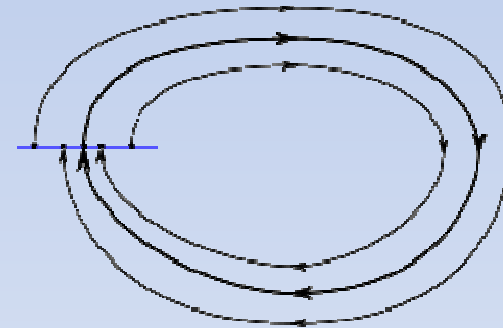
- Conservative systems (i.e., PNEI)
- Dissipative systems (i.e., microcircle)

# EQUILIBRIUM

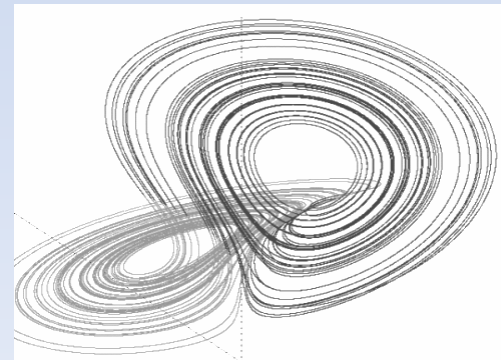
- FIX POINT



- PERIODIC - LIMIT CYCLE



- CHAOTIC ATTRACTOR



# CHAOS EQUILIBRIUM: THE STRANGE ATTRACTOR





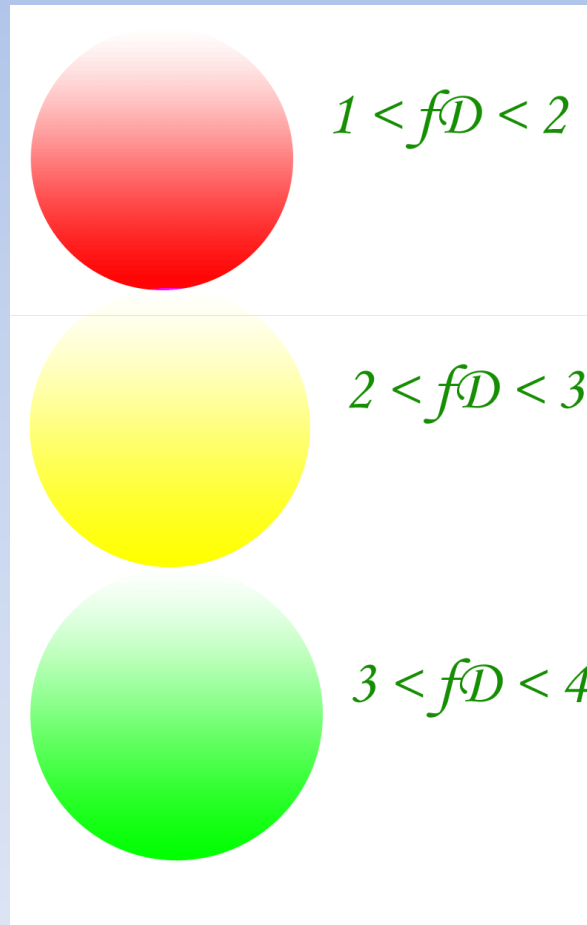
# STRANGE ATTRACTOR

- Flexible
- Adaptive dynamics
- Learning dynamics
- Feedback dynamics

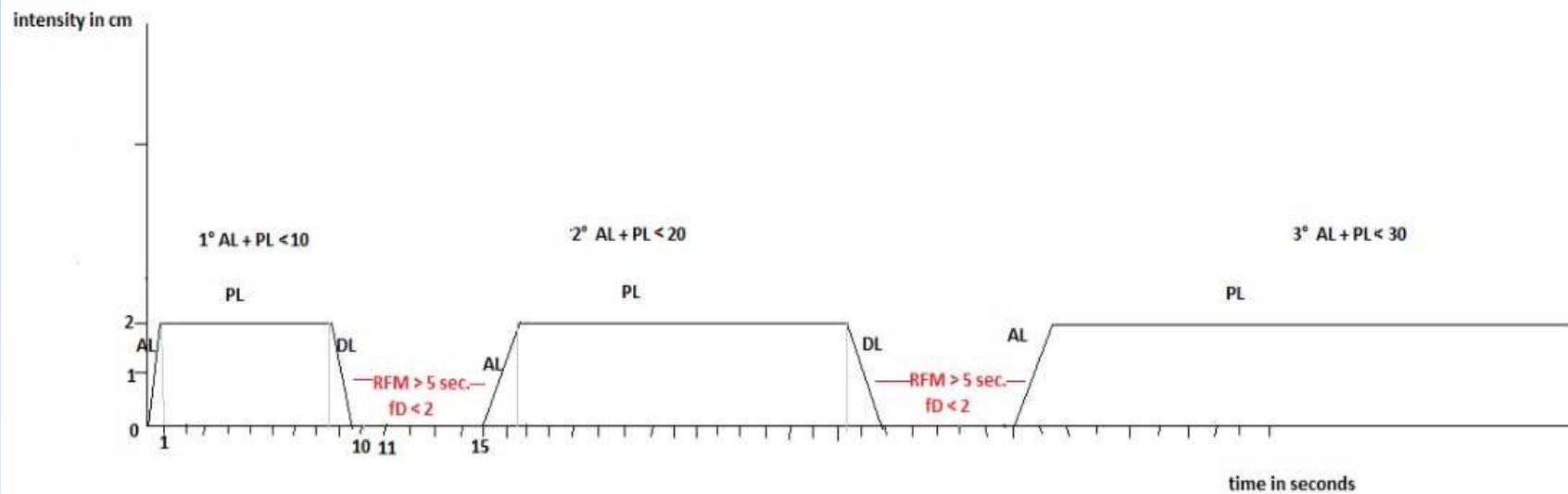
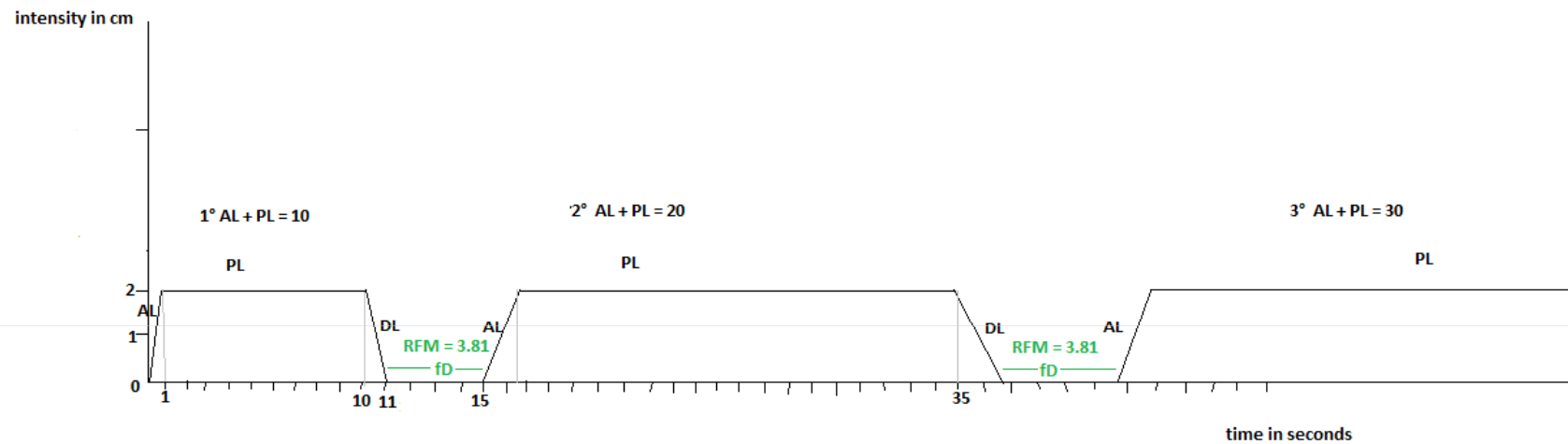
# CHAOTIC EQUILIBRIUM: STATISTIC MEASURES

- Fractal dimension
- Entropy
- Others

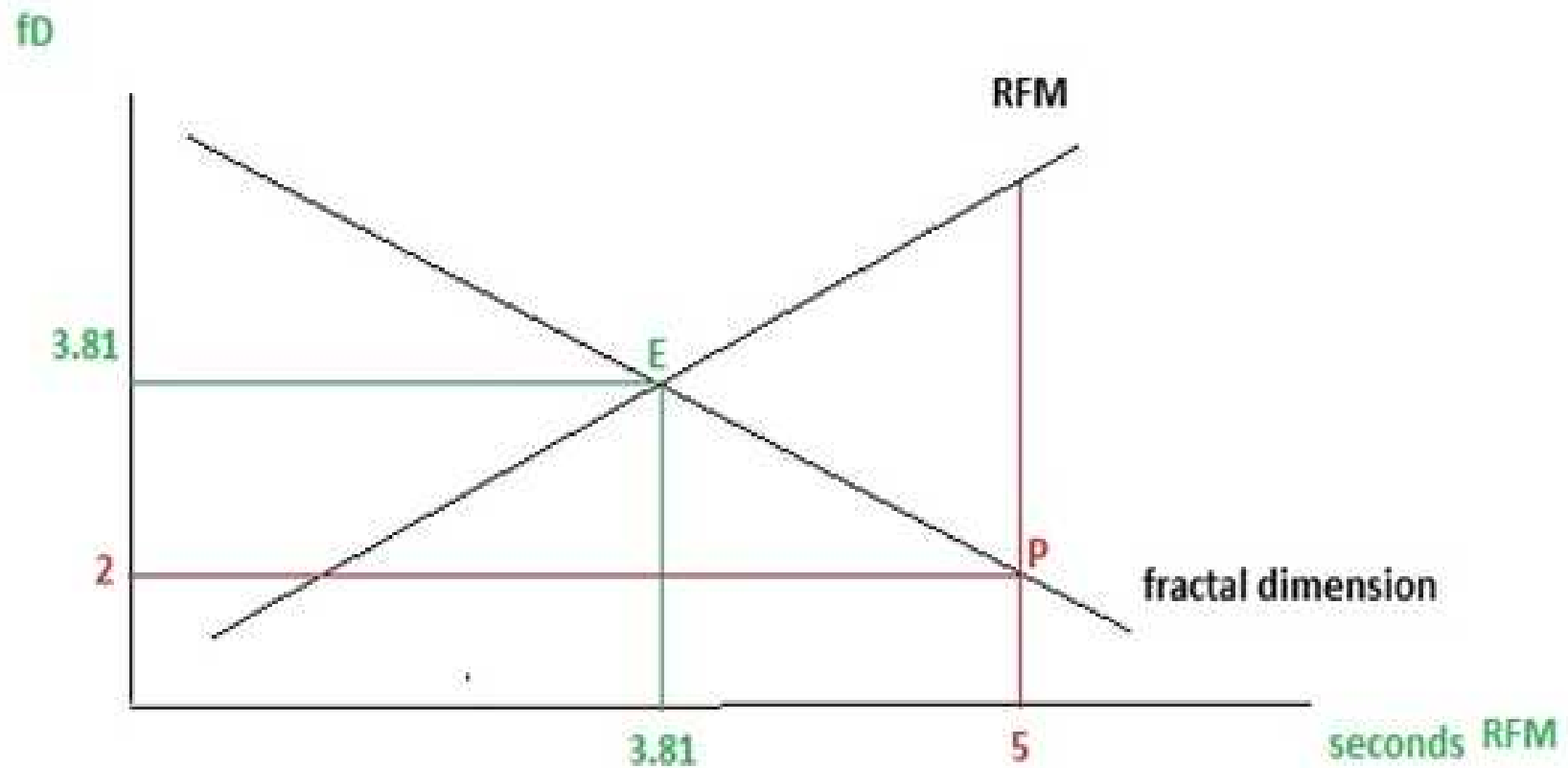
# TRAFFIC LIGHT of $fD$ in QBS



# MFR e FRACTAL DIMENSION



# MFR e FRACTAL DIMENSION



*Scheme 13. Inverse relationship between MFR and fractal dimension*



# FD & EQUILIBRIUM IN BIOLOGICAL SYSTEMS

Fractal Dimension $fD$	Equilibria	State of health
$fD = 1$	fix point	chronicity – chronic and acute pathology
$1 < fD < 1.9$	limit cycle tending to fix point	pathology – tendency to chronicity State of variable severity of disease evolution
$1.9 \leq fD < 3$	limit cycle	initial implementation of the tendency to disease /potential pathology- i.e. inherited Real Risk of CAD associated with arteriosclerotic constitution – initial evolution to disease
$3 \leq fD < 3.81$	limit cycle tending to strange attractor	tendency to physiologic condition (only potential phase)
$fD \geq 3.81$	strange or chaotic attractor	Physiologic condition – healthy state

# ENTROPY



# ENTROPY

- Rate of uncertainty
- **Rate of information' variation**
- **Qualitative information**
- $E > 0$   deterministic chaos
- $E = 0$   fix point/limit cycle



# QUANTUM DETERMINISM

- **Quality of information**
- **Causal interpretation of quantum theory**
- **Particle: causally determined trajectory**
- **Newtonian classical potential**
- **Quantum Potential – QP – which is determined by the quantum wave field, or wave function.**

# QUANTUM POTENTIAL

- **unpredictability & uncertainty**
- **intrinsic properties** of the deterministic dynamical systems observed, as in chaos theory
- **not random or casual** like in classical interpretation of N. Bohr

# QUANTUM POTENTIAL

- is independent of the strength, or **intensity**, of the quantum field, it depends only on its **form**
- There is an **active information** in the **form** having very little **energy** enters into and directs a much greater **energy**, an **energy form** acting to inform.
- **even distant features of the environment can affect this movement in a deep way.**

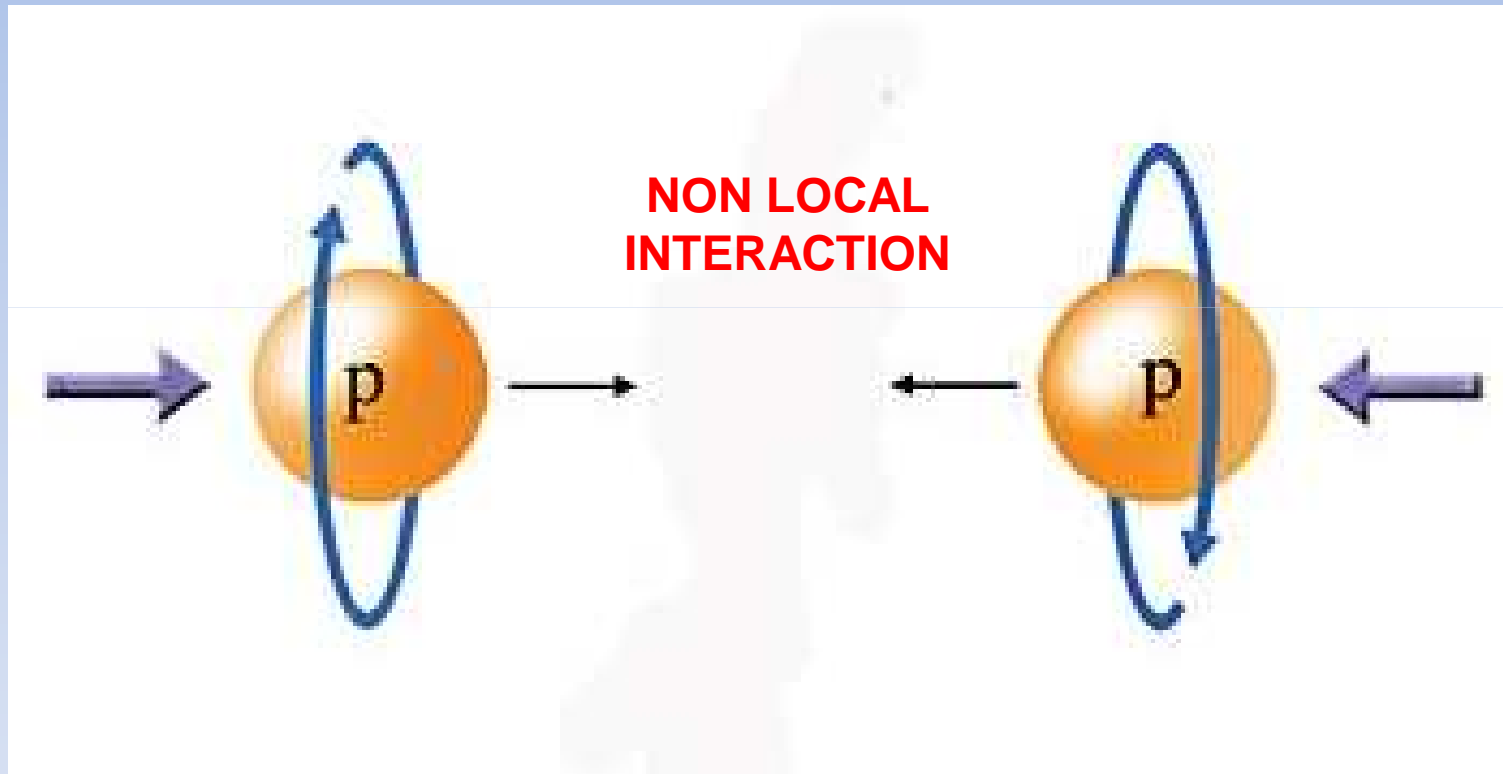
# QUANTUM POTENTIAL



# NONLOCALITY

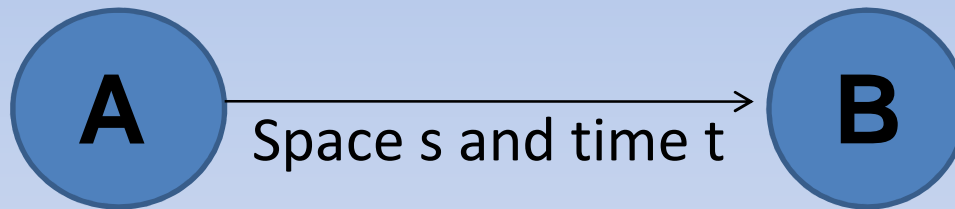
- **Nonlocal interaction:** very distant events can have a strong influence
- Non-locality implies an **instantaneous connection between distant events**
- This result follows in a natural way, within the causal interpretation, as a result of the **nonlocal QP that directly connects distant particles.**

# ASPECT'S EXPERIMENT



- **LOCALITY**

- ENERGY CONSUMPTION IN SPACE-TIME



- **NON-LOCALITY**

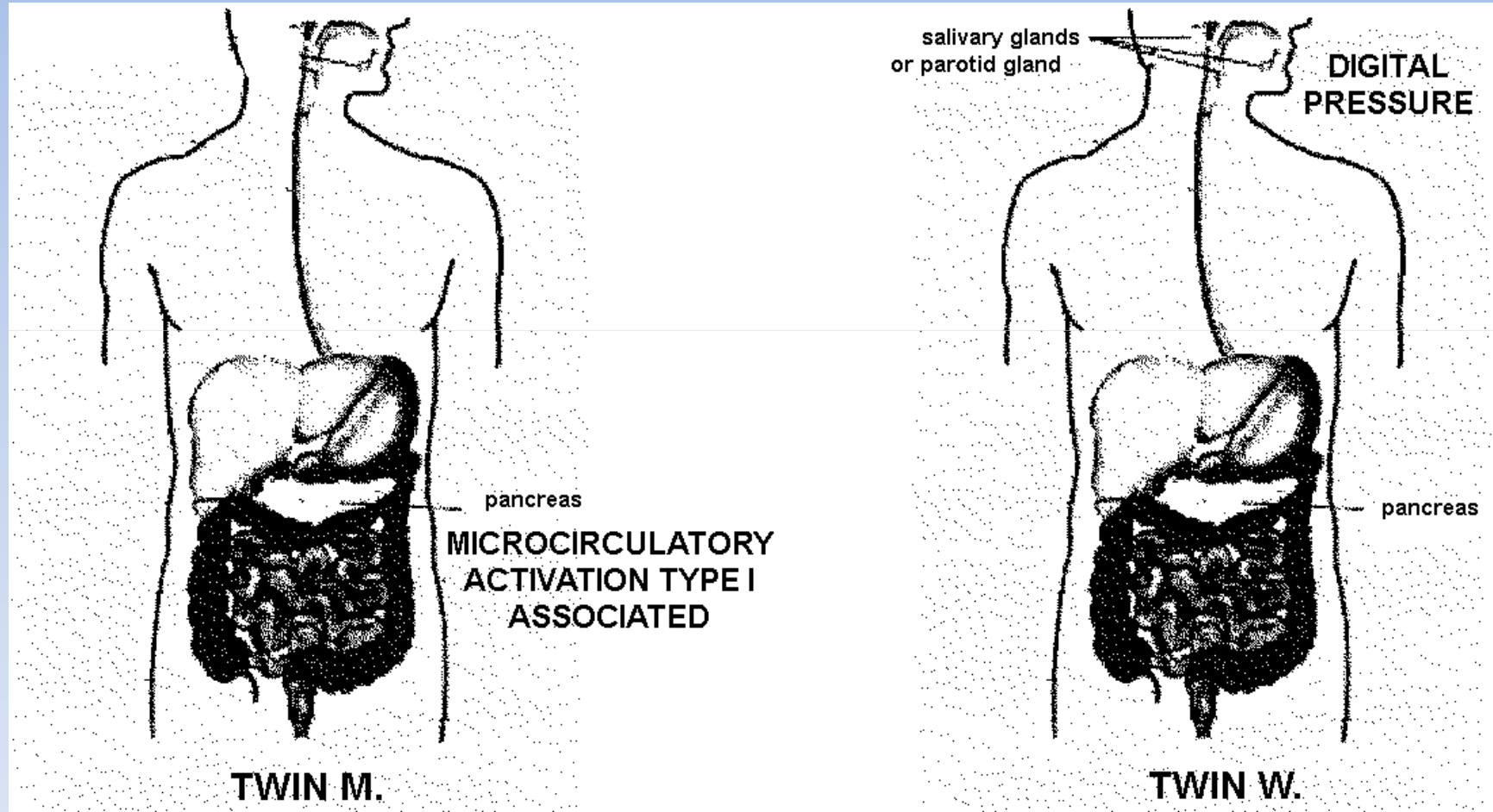
- SIMULTANEITY/SINCRONICITY
- INSTANT CONNECTION, NO WASTE OF ENERGY

# NON-LOCALITY IN BIOSYSTEMS

- Sub-quantum behaviors and biological systems dynamics are usually considered as separated and different worlds.
- **‘Lory’s Experiment’** (Stagnaro, 2008) opens new perspectives about the presence of non-local reality in biological systems.



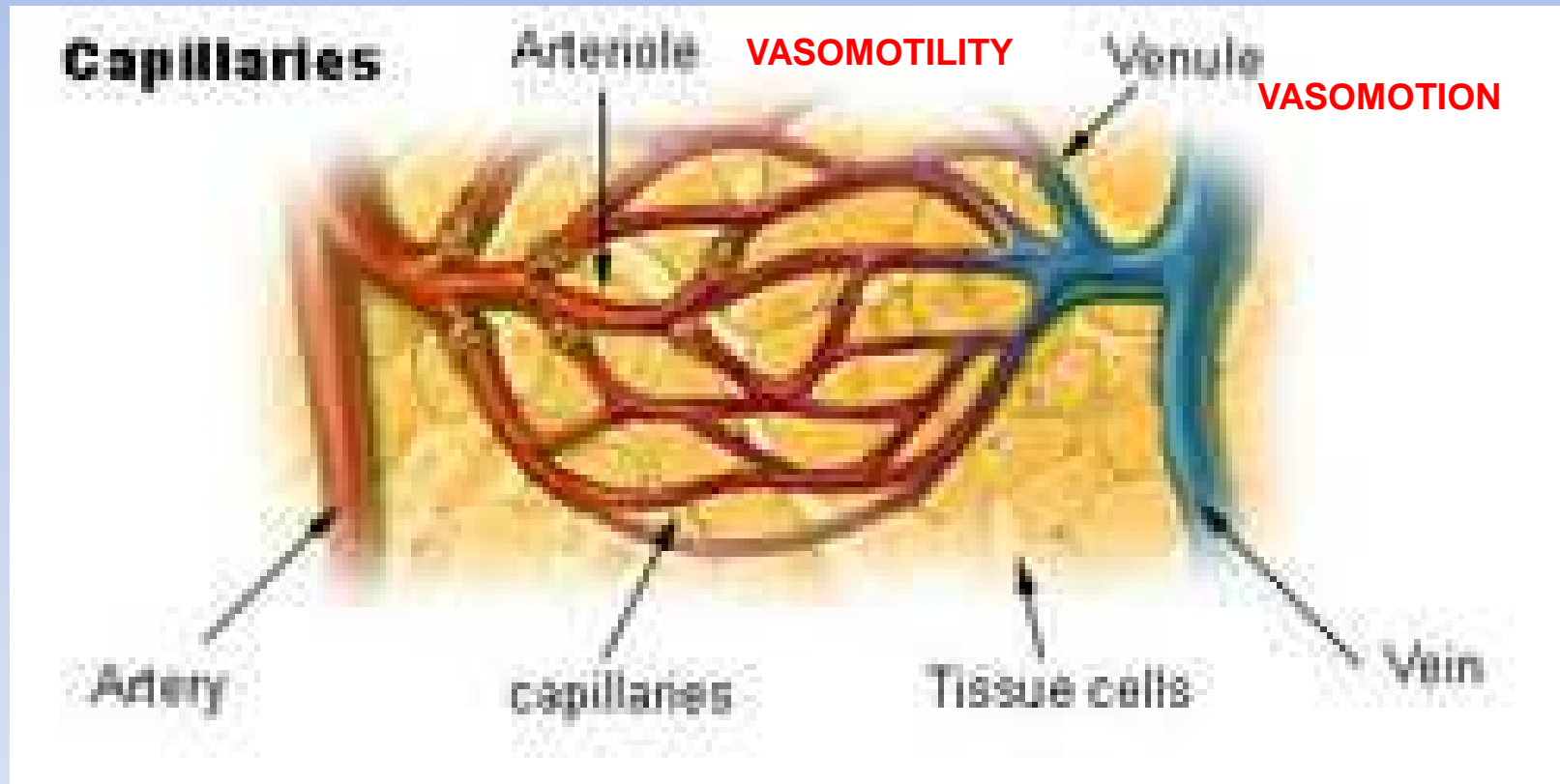
# LORY'S EXPERIMENT



# MICROCIRCULATORY ACTIVATIONS

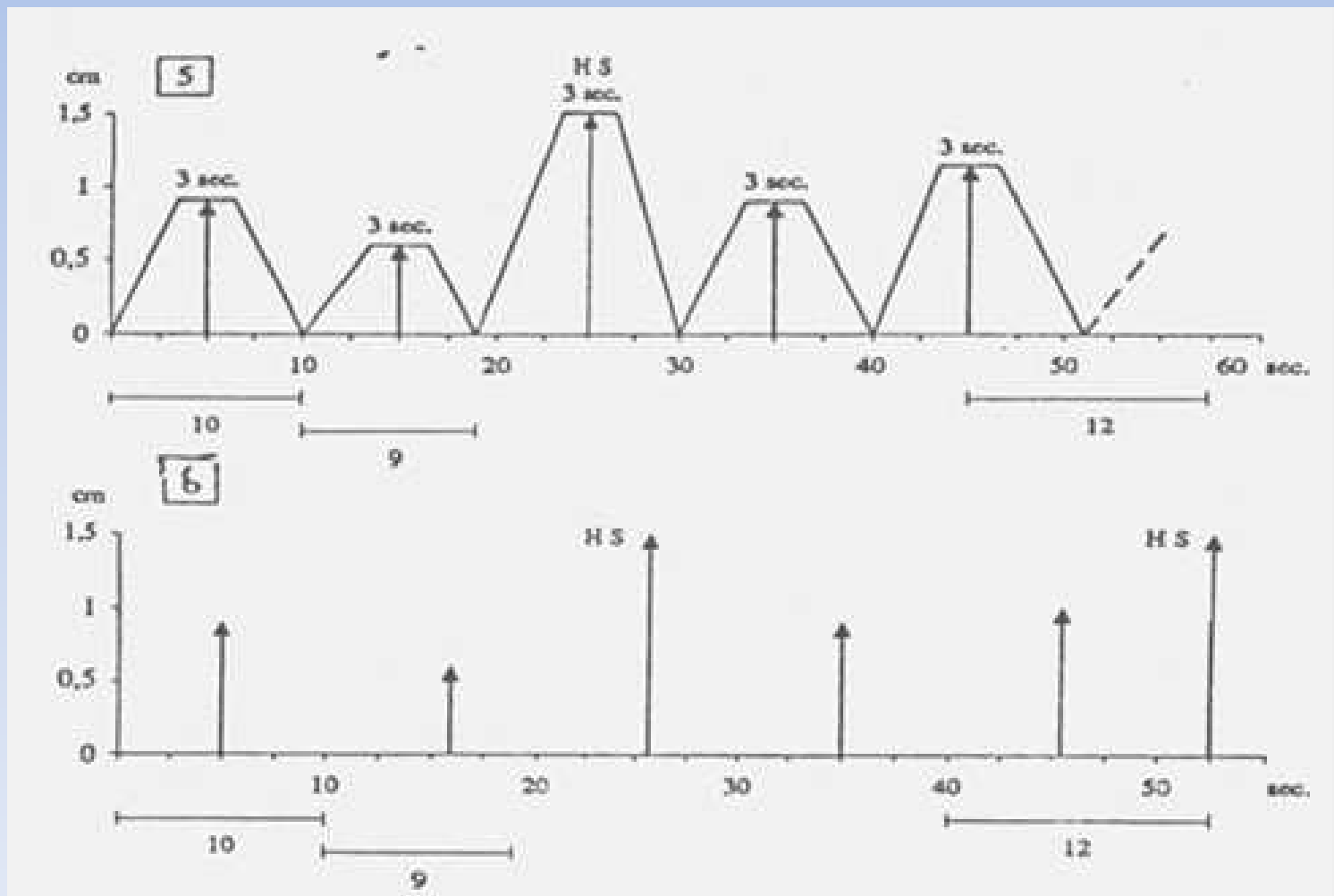
- The normal **microcirculation** at rest can become physiologically *active* when the **parenchyma starts to work**.
- **type I** or “associated”, “physiological”, in which both the *vasomotility* and *vasomotion* result increased and consequently blood-flow in nutritional capillaries and post-capillary-venules is augmented;

# MICROVESSELS

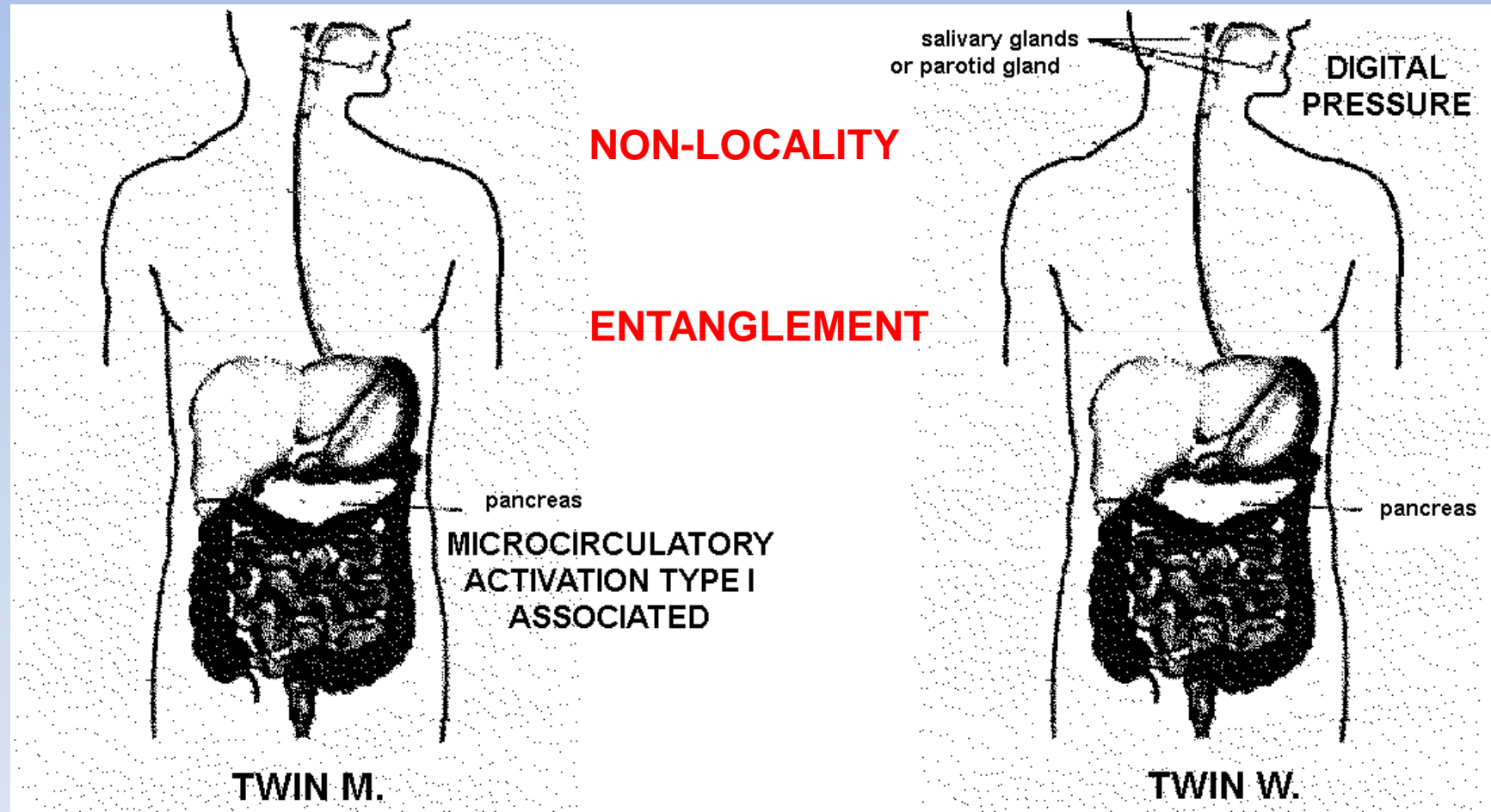


# VASOMOTILITY

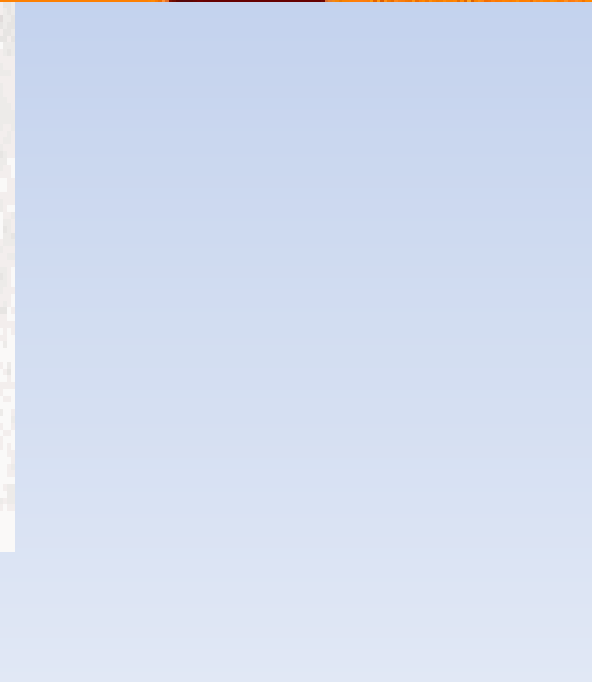
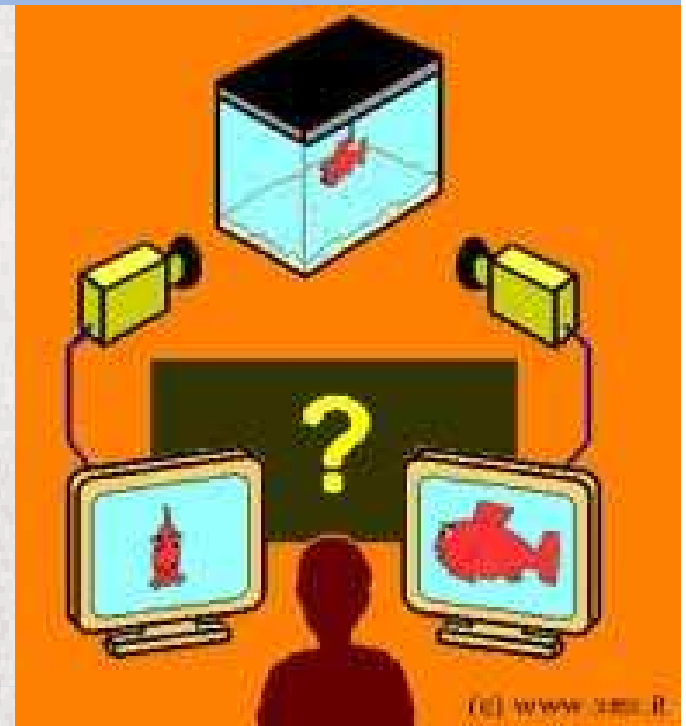
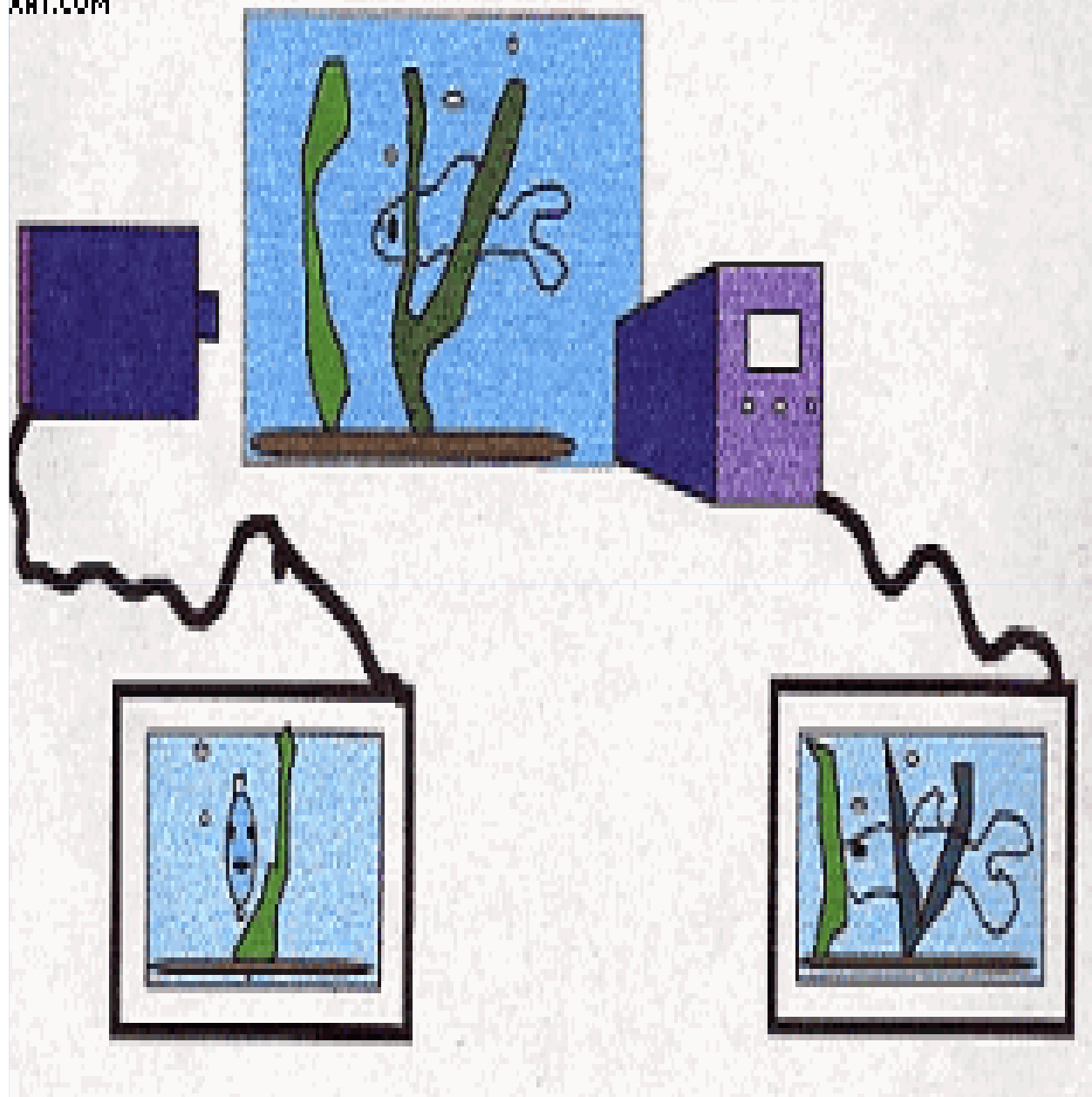
## VASOMOTION

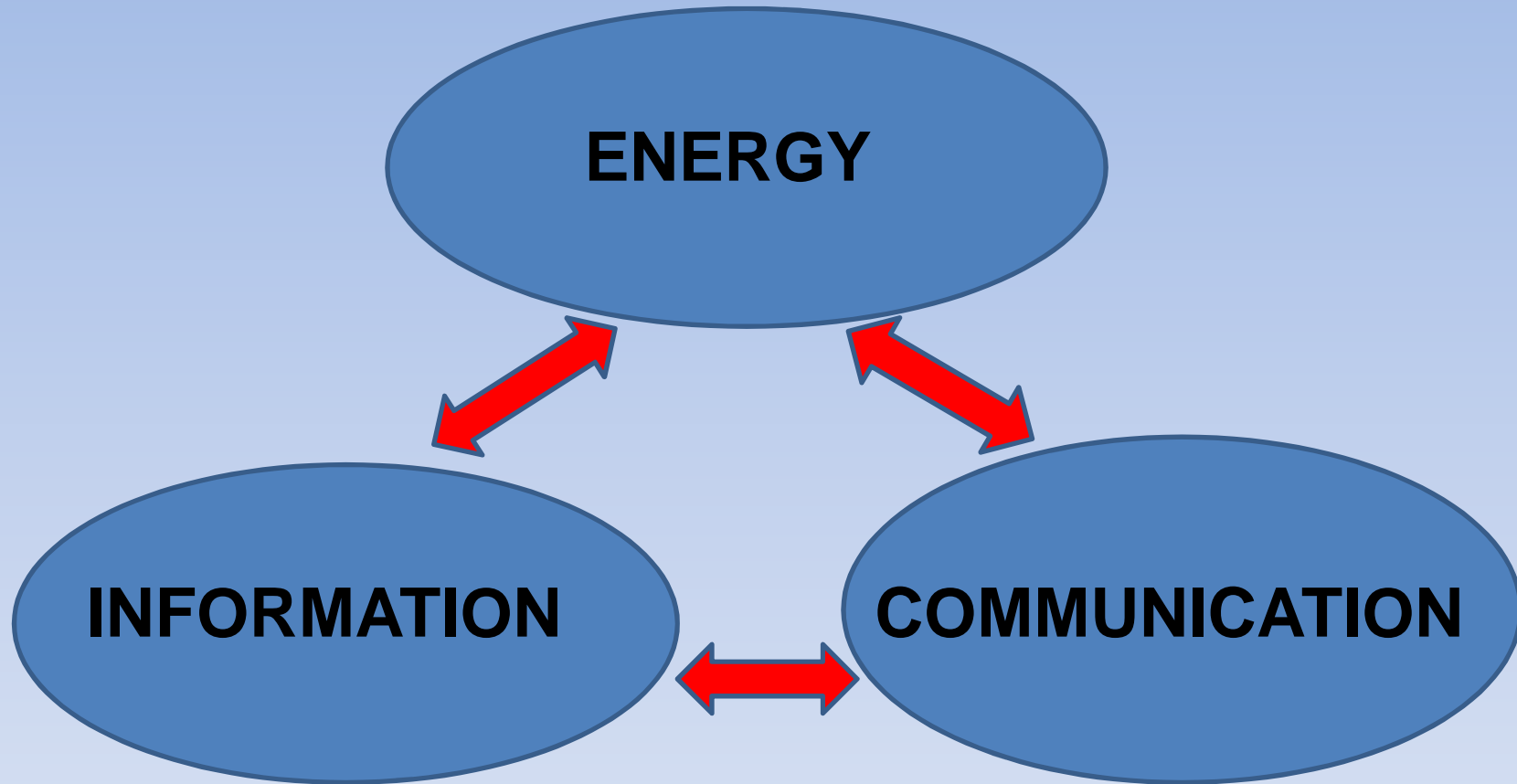


# LORY'S EXPERIMENT









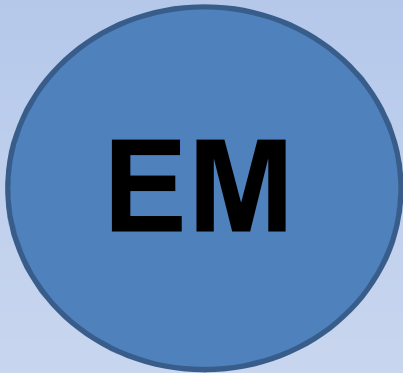


# Energy Information

- All events in nature belong to a particular form of different codified energy transmissions, so that **the total energy can not be created or destroyed.**
- Manzelli argues that **INFORMATION is a kind of a virtual ENERGY as a pure qualitative entity**, and EI is a part of the total energy–matter transformation.

# EI & DNA ANTENNA

- Since life system is based on the **COMMUNICATION** system, DNA functioning can not only be seen as a storage of genetic information
- We can consider DNA/RNA dynamic system as an **INFORMATION ENERGY (EI)** catalyst (Manzelli, 2009) able to transmit and receive bio-physical quantum signals to and from the proteins in the living cells
- **DNA** as an “antenna” transmitting nonlocal information through ‘**gene quantum signals**’



**EM**



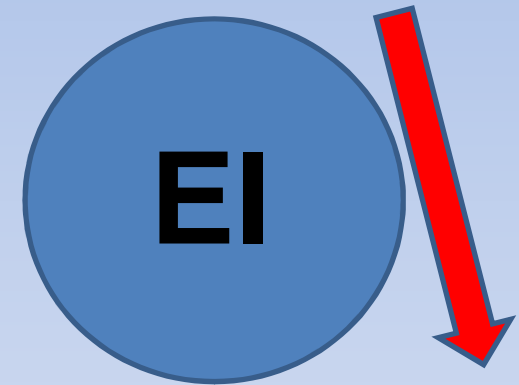
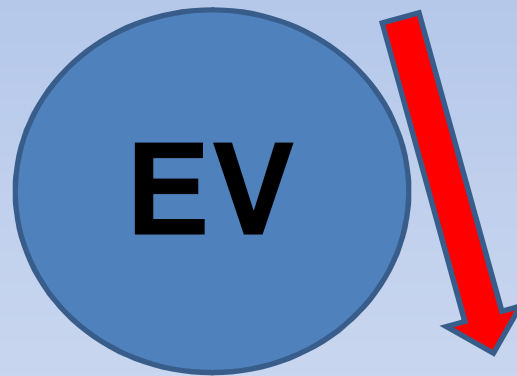
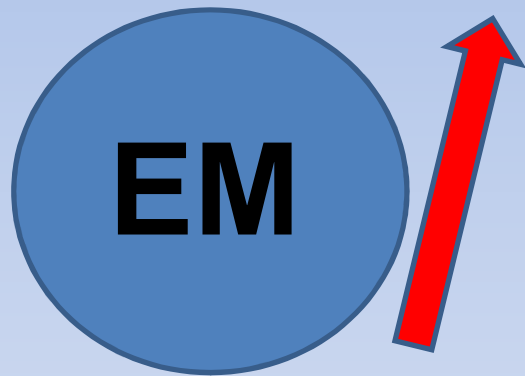
**EV**



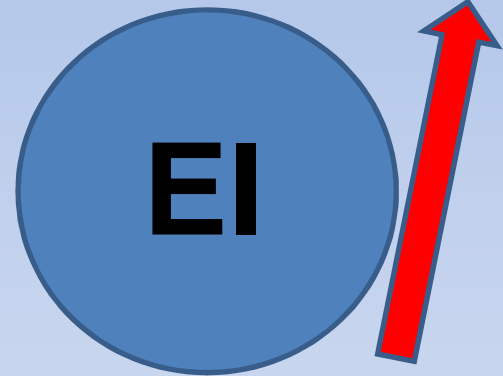
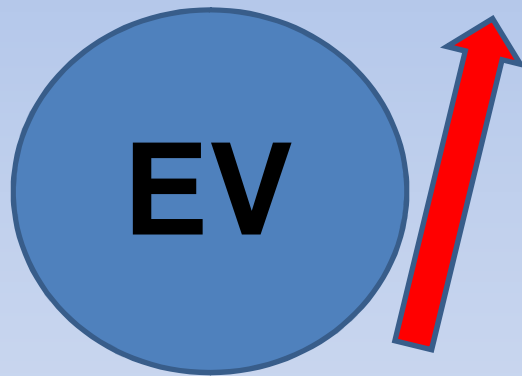
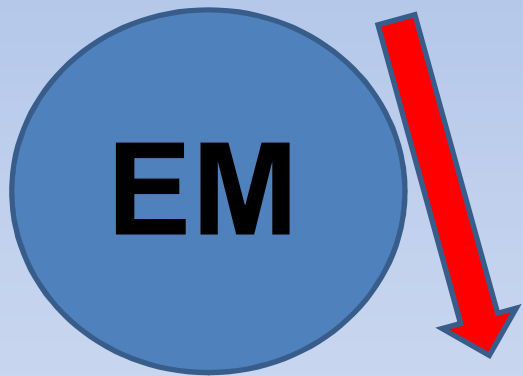
**EI**

EM + EV + EI = K

- $\Delta (EM + EV + EI) = 0$

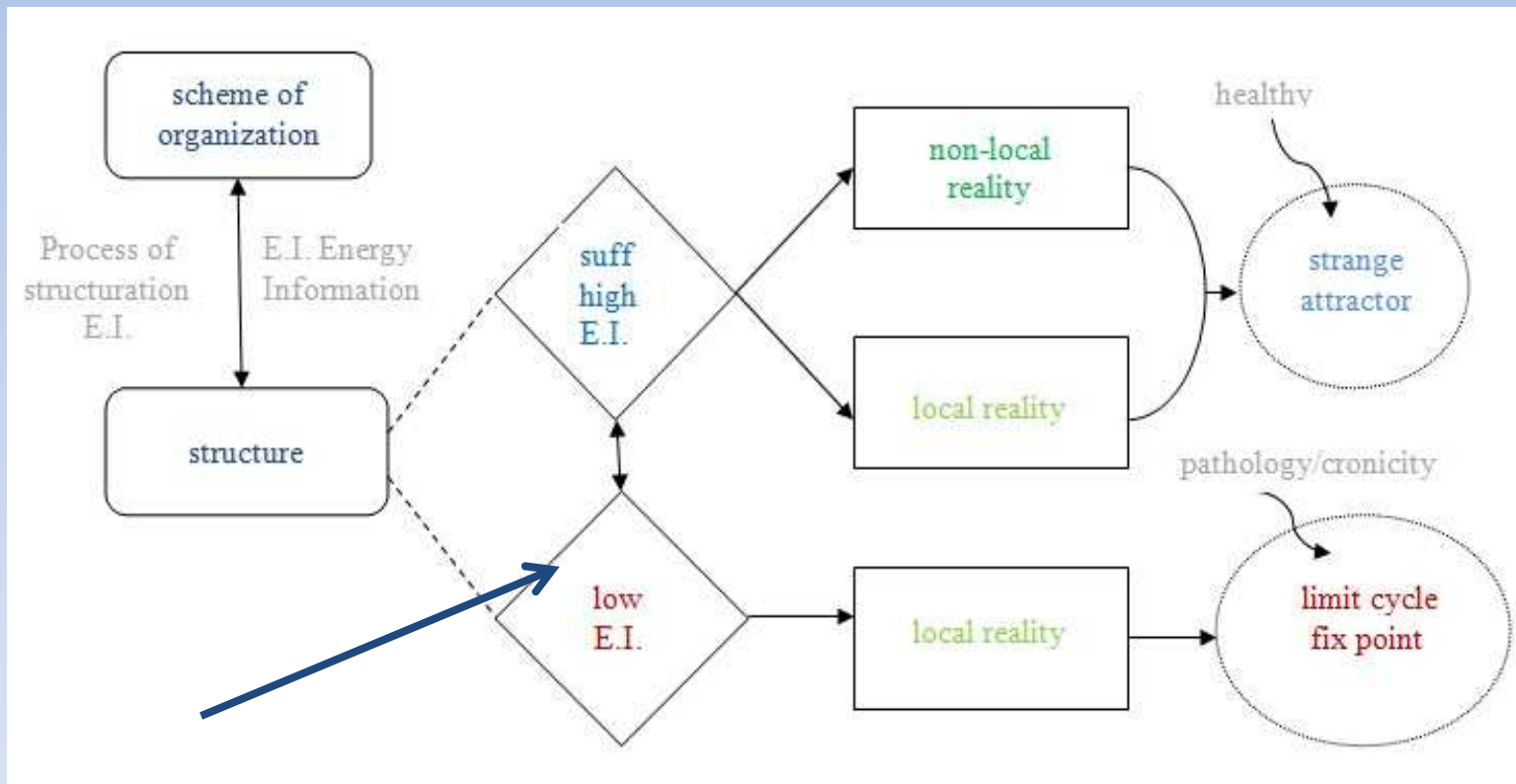


**TISSUE  
ACIDOSIS**



ATP

# AUTOPOIESIS & EI



# AUTOPOIESIS & EI

- It has been verified and tested in biological systems the hypothesis of:
- **the correlation between nonlocal reality and deterministic chaos;**
- **the co-presence of local reality and non-local reality in physiological states;**
- **a sufficient high amount of information energy (EI) as catalytic process to maintain no-locality in the autopoiesis.**



# COMPENSATORY MECHANISMS

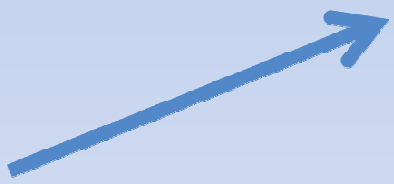
- There is structural coupling between **organization (conservative)** and **structure (dissipative)** to achieve always the autopoiesis
- If there was a tendency to disease (or a pathology) in biological systems **the organization**, i.e., PNEI system, would always be oriented towards the **survival**
- ..materializing and engaging **compensatory mechanisms to restore the simultaneity and synchronicity**

# PRE-METABOLIC SYNDROME

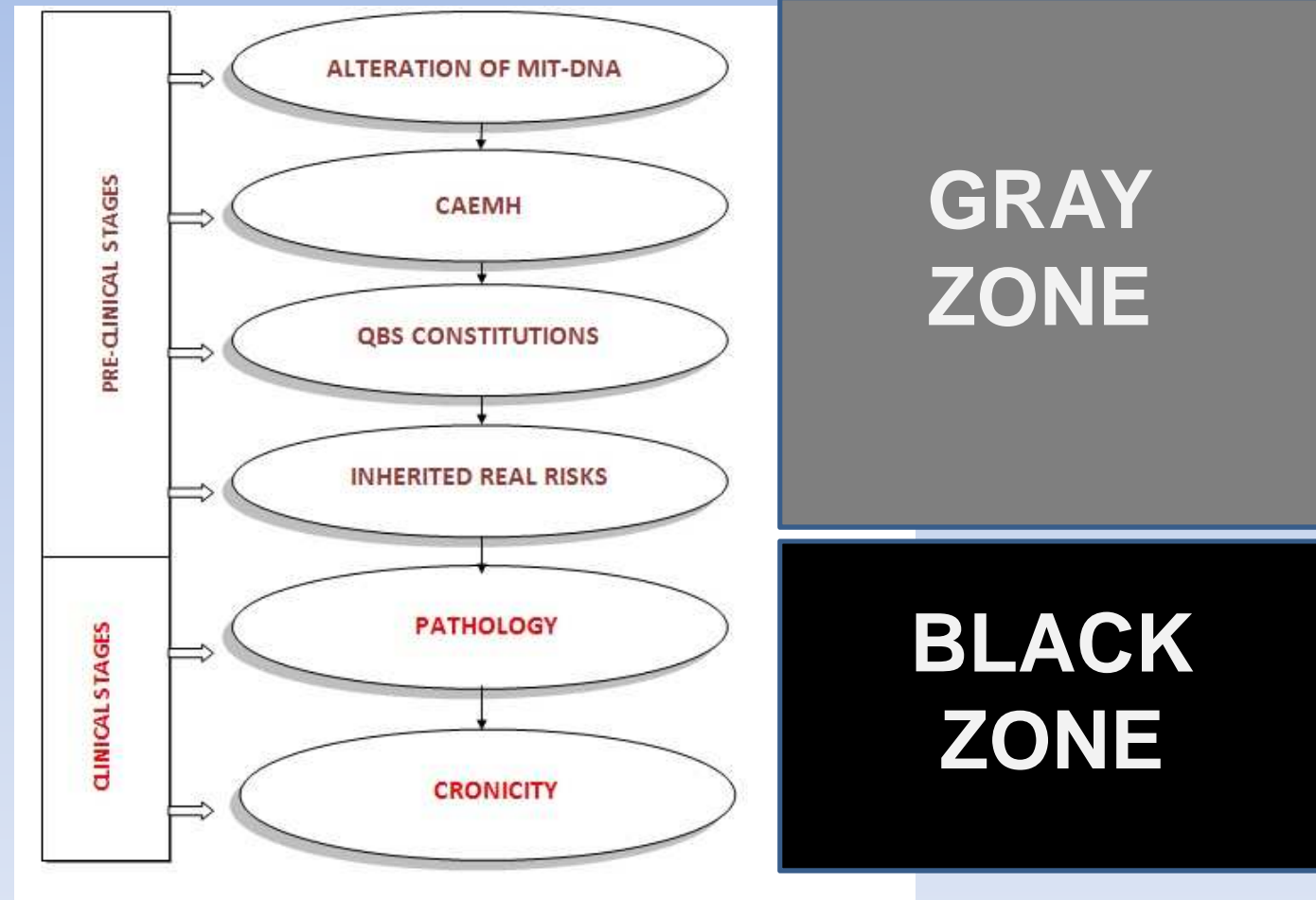
**WHITE ZONE**

**GRAY ZONE**

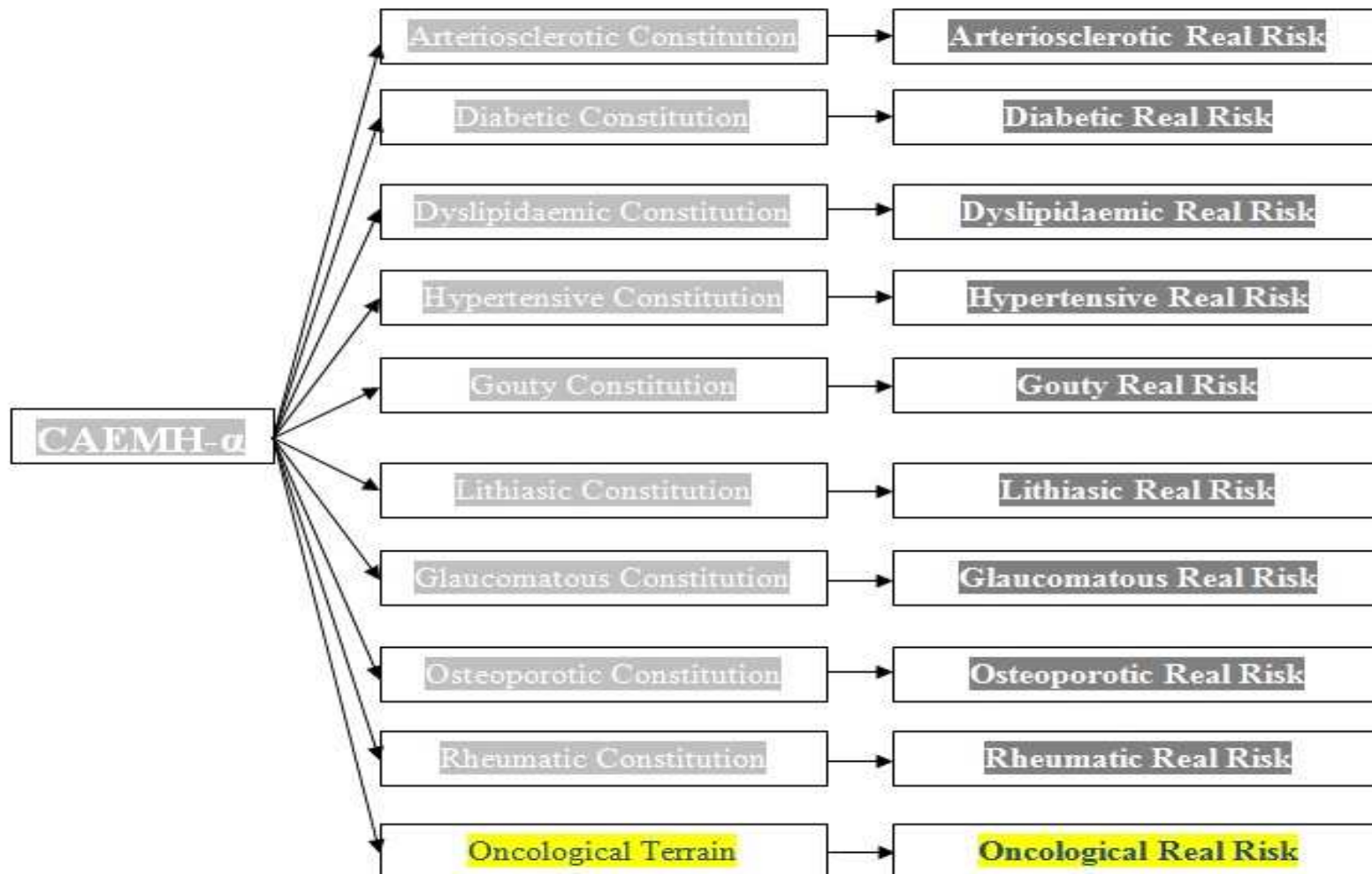
**BLACK ZONE**



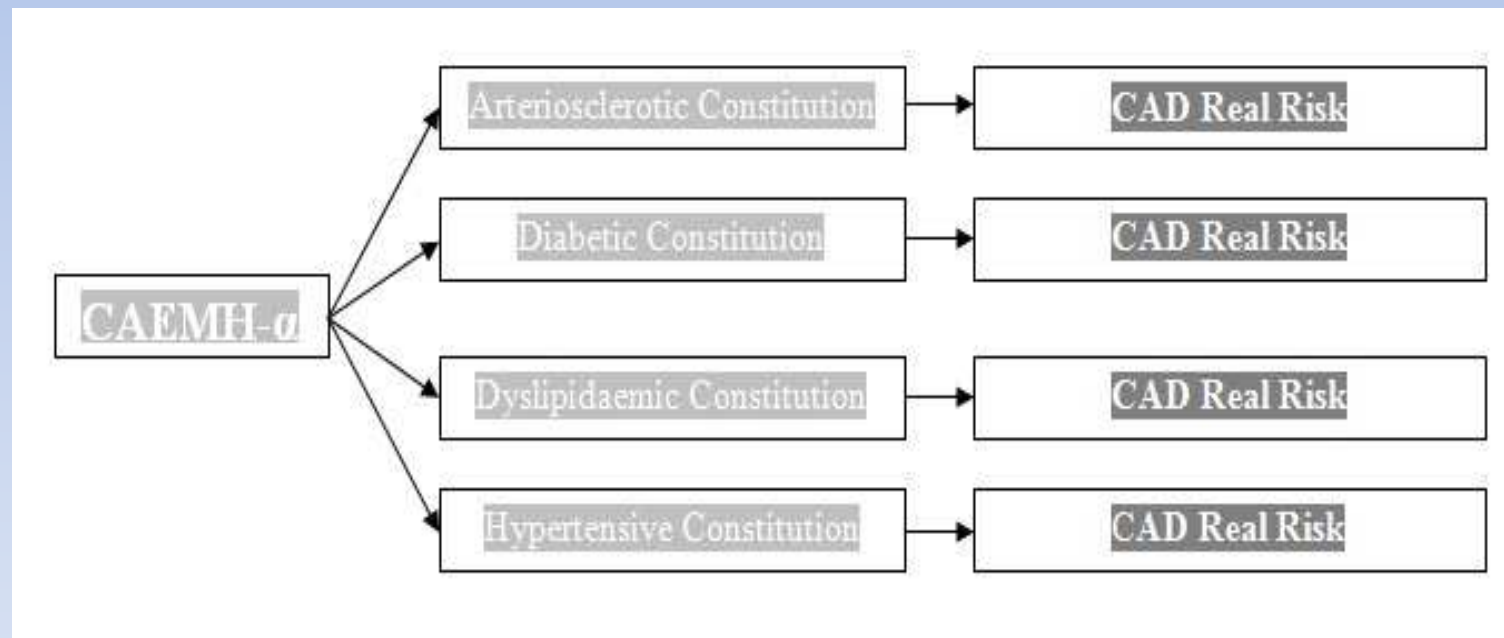
# PRE-CLINICAL STAGES

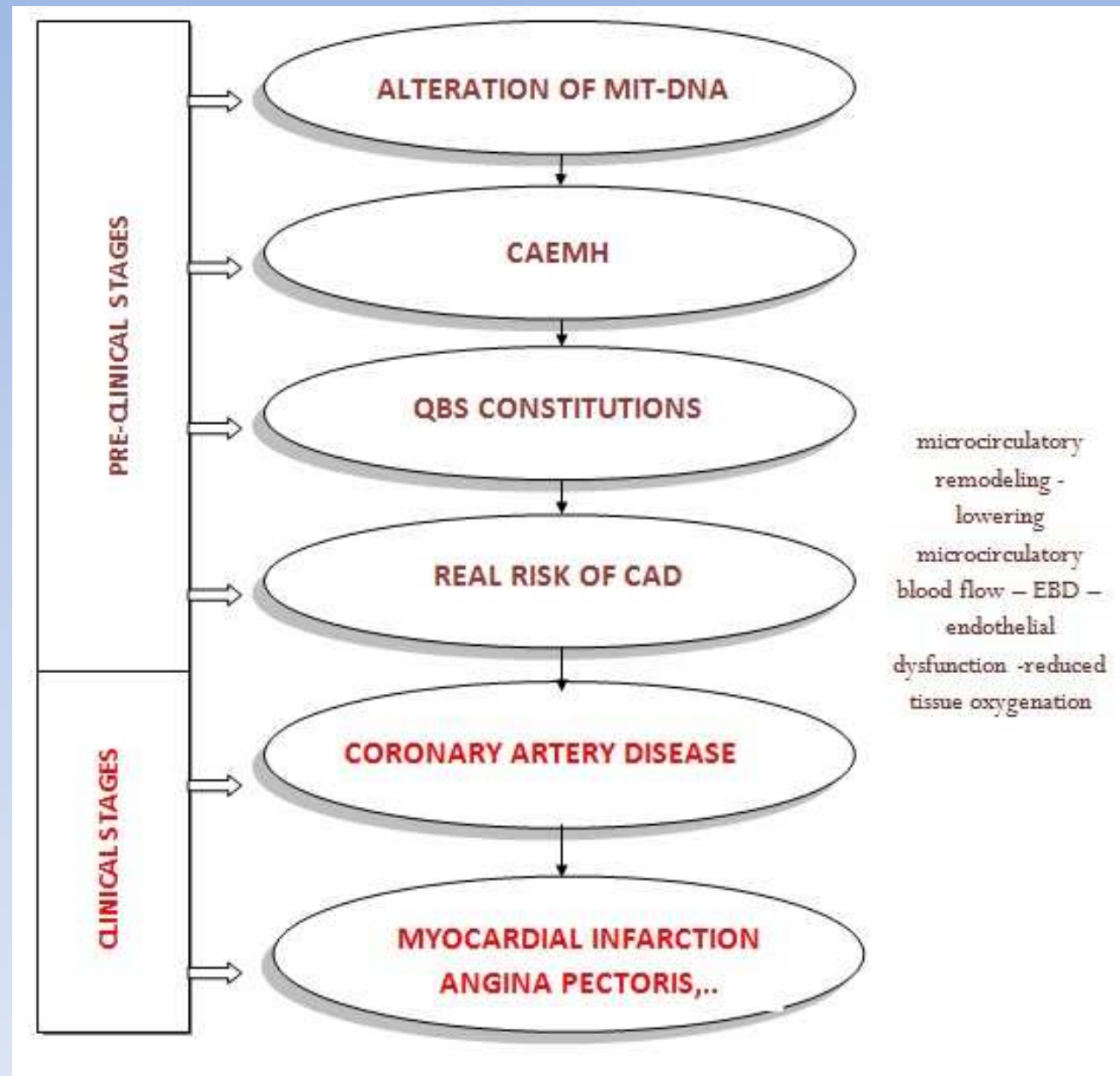


# CAEMH- $\alpha$ , QBS CONSTITUTIONS & INHERITED REAL RISKS



# *CAEMH- $\alpha$ , QBS CONSTITUTIONS & INHERITED REAL RISK OF CAD*





# PREVENTIVE THERAPY

- TO IMPROVE TISSUE OXYGENATION
- TO PROTECT THE TISSUES
- TO IMPROVE MITOCHONDRIAL RESPIRATION

Thank you for your  
attention!!