

# ALMA

**AUSTRALIAN LIFESTYLE MEDICINE CONFERENCE**

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# The Body that Changes Itself

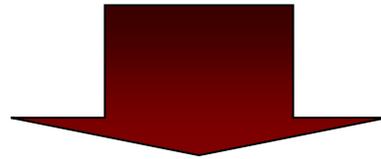
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# The Paradigm Shift

The earth was once thought of as flat.

The spherical view led to many breakthroughs.

The human body is viewed as solid (machine like).



This paper will suggest THE HUMAN BODY IS “PLASTIC” – pliable, malleable – much more dependent on **lifestyle influences** in

causing disease

overcoming disease

This paper presents some of the underlying “**startling**” **mechanisms** of this plasticity based on the latest science.

It is my premise that this **plasticity** or  
“flowing, ever-changing movement pattern” of the  
human body is the basis of **life** and  
the basis of **health**.

Measuring this plasticity is a new **diagnostic test** that **measures health**.

# The Science & Scientists that Support the New Medical Model

Evolution

Darwin

Theory of Relativity

Einstein

Quantum Mechanics

Bohr/ Schrödinger

Uncertainty Principle

Heisenberg

Dissipative Structures

Prigogine

Chaos Theory

Lorenz/ Mandelbrot

Complexity Theory

Santa Fe Institute

Phase Transition Theory

Langton/ Gell-Man

A New Kind of Science

Wolfram

Non-linear Dynamics

von Neuman

Information Theory

Shannon

Santiago Theory of Cognition

Maturana/ Varela

# The Santiago Theory of Cognition

states:

**1** The process of cognition (of knowing) involves an organism “structurally coupling with an environmental substance”

This process goes on in a single cell organism.

It also occurs in other cells of the human body outside of the brain.

**2** They also state that the process of knowing (for which no brain is required) is also the “process of life”.

To be the “process of life” it must extract energy from the environment.

# The Hybrid "Plastic" Human Body

How Complexity Science, the “latest science” suggests the human body might do these **“amazing” not-machine-like things.**

It can only do these things, if it's not solid, but plastic.

What are the mechanisms?

# Complexity Science

This latest science clarifies that the human body is made up of entities that are

- ① SOLID
- ② FLUID – a minimum of 70% of the human body's mass is fluid (water)

And a constant state between the two -

- ③ SOPHTID

With a fourth element:

- ④ A **permanent connection to the environment** (including lifestyle influences)

# The Three "Plasticity Dances"

We all know that all atoms are moving –

If it is **SOLID** The atoms are moving slowly and are tightly bound to each other.  
Comparison with dancing – Line Dancing

If it is **FLUID** The atoms are jiggling and bouncing, twisting and turning (Feynman)  
Comparison with dancing – Waltzing – and like in waltzing they attract each other and thus clump together to self assemble.

When **water turns to ice**, it does so at one precise temperature point – this is called a “**First Order Phase Transition**”.

There are substances that stay in this in-between state for a longer period of time – this is called a “**Second Order Phase Transition”.**

# The SOPHTID State

SOPHTID - Second Orders Phase Transition Identify:

Experiments have shown in this continuous in-between - SOPHTID – phase the molecular movement patterns are marked by being

- 1** RANDOM and CHAOTIC  
Comparison with dancing – Hip-Hop or Break Dancing.
- 2** has a very small amount of ENERGY AVAILABLE that is NOT LOCKED IN.

This enables it to **COUPLE** with another substance in its environment (e.g. lactose).

This coupling happens by **EXTRACTING ENERGY** from that substance (lactose).

This results in the previous **movement pattern being “form”-alised** in a physical form that now sits on the substance.

# Information Generation

It is the not-”locked in” very small bit of energy that enables the movement pattern to **COUPLE** with an **ENVIRONMENT SUBSTANCE** (e.g. lactose) and

It takes on a **FRACTAL SHAPE** like its preceding movement pattern – a fractal activity).

The “**FORMATION**” sits on the environmental substance and **uniquely codes it**, similar to barcodes, from an infinite number of choices, as most fractals are unique.

This new “**IN-FORM-ATION**” advises the rest of the cell as to the nature of this environmental substance (e.g. lactose).

This process thereby has

- ① Simultaneously **generated information**
- ② **Extracted energy from that substance** when combining with the environmental substance (lactose) – it is evidenced by having created **ORDER** (higher level of energy) from **CHAOS** (lower level of energy).

# Information Processing

The neighbouring **solid** part of the cell – the cell membrane – ensures the newly fractal-  
"barcoded" substance (lactose) does not escape – the information is **STORED**.

The **fluid** part of the cell enables the newly generated information (encoded lactose) to  
be **TRANSFERRED** across distances within the cell.

The **COMBINATION** of these processes, namely the

- Information **GENERATION** of encoded information that has a physical form,
- + Information **STORAGE**
- + Information **TRANSFER**
- = **INFORMATION PROCESSING**.

Hence it enables **KNOWING**, viz. **COGNITION**.

# What is Information?

Or – Why is **this** information?

INFORMATION is the DISTINCTION of DIFFERENCES.

As the SOPHTID is chaotic and infinite, it generates differences from an infinite number of options, and if **one** of these DIFFERENCES ARE **STABILISED** in a physical form, it generates information.

I propose that this is what enabled the earliest protocell's or any organism's future behaviour to be determined by:

- ▶ INTERNAL INFORMATION PROCESSING rather than external forces.
- ▶ This dynamic activity remains what I contend is the subtle force, the *elan vitale* responsible for life.

# The Downside of Structural Coupling

Incorporating encoded information as a PERMANENT RECORD of an EXPERIENCE – good or bad – has converted our flexible, full-of-movement potential into a stabilised, but also rigid, **single**, physical record.

All the possible outcomes, namely generating new information, has been restricted by its more rigid fractal form or pattern, the result of previous structural coupling.

Because this pattern is likely to act as a TEMPLATE or guide future structural coupling, through the circular self referring process of cognition, it has resulted in the human body becoming MORE RIGID (solid) and LESS AVAILABLE to combining with the MOST BENEFICIAL elements of substances or activities in its environment.

## **Increasing solidification**

viz. the result of prior information generation within the cells –

=

**decreasing adaptability.**

# Measuring the Human Body's Rigidity or Plasticity

**A practical application for today:**

Today, in psychometrics, viz. psychology dealing with measurements of mental traits and physical capacities and processes, e.g. DASS, SF-36 or Oswestry Back Index, they use advanced **statistical methods** that measure a host of human levels of “activity” (dynamism) and/or “functions” of individuals as a whole.

As they measure “activity” of humans, I maintain that by proxy they are **measuring the plasticity or rigidity at the microscales of the human body.**

# New Diagnostic Tests

I maintain that the **Dynamic SF-36** questionnaire - or similar multi-dimensional functional health status measures - are currently our best proxy for measuring the subtle internal forces (hybrid movement patterns) that underpin the functionality and dynamism of healthy individuals.

They reflect the body's plasticity viz. the **adaptability** and thus its **health**.

They represent a new set of “diagnostic tests” that are truly **measuring a person's health**.

They should become the new diagnostic tools of Lifestyle Medicine.

## SUMMARY

Unlike in the still current mechanistic view of the human body, not only the brain, but the **entire human body can induce changes**. That is because Complexity Science makes it clear it is made up of entities that are solid, fluid and in a constant state between the two – **SOPHTID**.

This state is marked by being **random and chaotic**.

The molecules in this open state have a tiny amount of energy that is not bound up and therefore enables it to **couple with another substance** in its environment, e.g. lactose.

This coupling happens by **extracting energy from its environment** and, because this results in the shape of its its previous movement pattern.

This unique formation acts **like a barcode** being information about the nature of its coupling partner (lactose).

As it created a unique form of order out of chaos, it has **more energy within it**. It has gained energy **from the environment** – a hallmark of life.

The cell with its solid membrane enables **order from the chaos** of its previous movement pattern and in this state of solidity **stores** unique information.

**Fluidity** allows the **transfer** of information.

Information is the **distinction of differences**.

This **information processing** (based on the difference identifiable in a unique fractal pattern) affords the cell rudimentary **knowing/ cognition**.

The organism's future **behaviour** is therefore determined by constant **internal information processing** rather than external forces acting upon inert substances.

I believe **this process of cognition by the cell is the subtle life force**, the *élan vitale*.

Increasing solidification/ information processing by the cells also means increasing **rigidity** and thus **decreasing adaptability** and capacity to choose the most beneficial, currently environmentally appropriate, behaviour for the organism.

**Functionality and capability measurement** (e.g. SF-36, DASS or Oswestry Back Index etc.) are by proxy measurements of the human body's level of capacity for the cells' environmentally appropriate cognition, adaptability and ability to make beneficial choices.

Maintaining and increasing health therefore asks for **achieving and maintaining openness and fluidity** – plasticity – and thereby **adaptability**.