



# **NES Basic Science Manual**

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# **1. Introduction**

## **1.1 Energetic Anatomy and Physiology**

The HBF and Biophysics are new territory for most health care practitioners. In this compendium you will come across many original concepts and fresh ideas about the functional make-up of the human body-field. However, you will find that your knowledge of standard anatomy, physiology and pathology, along with the variety of holistic skills acquired over the years, are vital companions in this exploration. They will all come into play while using this new system of analyzing and promoting optimal health.

NES Foundation Training and the Certificate Course, Module 1 introduced important basic concepts regarding the Human Body-Field (HBF), its nature and functions. It also covered the use of NES infoceuticals and developing a basic Infoceutical usage protocol. This section reviews this information while integrating new material that will be expanded upon further in this compendium. As an NES practitioner, it is vital to have a firm grasp of the fundamental principles behind biophysics and the HBF before moving on to more advanced protocols.

## **1.2 Biochemistry, Bioenergetics & Biophysics**

Fundamentally, all living organisms and biology are based on cellular activity. Maintaining and reproducing healthy cells and coordinating their actions is the process of homeostasis and largely what life is about. If you can explain how these processes fit together, what controls them and why they may stop operating in an optimum way, you have made a tremendous discovery.

Biochemistry is the dominant force today in trying to explain the miraculous process of life; however, ancient health practices such as acupuncture and Ayurvedic medicine, and the recent discoveries of biophysics and quantum biology, indicate that there is far more to life processes than can be explained by biochemistry alone.

The traditional Western approach to biological function is explained through biochemistry—the study of chemical reactions, compounds, proteins, nucleic acids, and cells within living organisms. In the 150 years or so that modern biochemistry has existed, an extensive and complex model attempting to trace all the biochemical interrelationships in the human organism has been constructed. This model helps explain the many processes that are involved in the formation and function of the human body.

This scientific base has allowed surgeons and doctors to become highly successful in the treatment of acute health conditions and perform miraculous operations. We are given the impression that scientists can now explain all the body's operating functions through biochemistry and DNA analysis. Yet a growing number of top genetic and biochemical researches admit that the deeper they delve into the workings of human chemistry, the less they really seem to understand. There are paradoxes

and unexplainable phenomena, missing links and a growing awareness that something else is required to connect all the bits and processes together. There seems to be an element missing in the biochemical model. This lack of understanding is most clearly demonstrated by the poor recovery rate of people suffering from chronic health conditions. In many cases, existing science does not seem to be able to fully explain or offer solutions.

For many years eminent researchers have observed that biochemical processes are accompanied by energetic phenomena. These phenomena do not fit into the traditional biochemical model and are not explainable through chemistry alone. A sampling of these investigations includes the following:

- Harold Saxton Burr in the 1940's identified an energy field that surrounds all living beings, which he called the 'L field' or Living field.
- In the same era, Semyon Kirlian developed a technique to view the body's corona discharge, an 'aura' type field made visible through high voltage charges across a photographic plate.
- In the 1950's, Dr Robert O. Becker produced a large body of research showing the presence of electric currents in the skin and identified their importance in regenerating tissue.
- Prof Kim Bong Han traced the acupuncture meridians with radioactive isotopes in the sixties.
- In the following decade, Prof Fritz-Albert Popp discovered biophotons, the phenomena whereby living cells emit packets of light called photons.
- In the seventies, Freeman W. Cope developed the Solid-state Theory of Biological Processes. He demonstrated that cell organelles were like three-dimensional semiconductors (a semiconductor is the basis of a transistor, the building block of all modern electronics). He showed that cells can be seen as electrical energy-control devices.
- In the 1990s, Beverly Rubik demonstrated the existence of the human 'biofield'.
- In the last decade, the English biologist Rupert Sheldrake published *A New Science of Life*, describing a *morphogenetic field* based on DNA and RNA. This was proposed as a grand control mechanism for all living things. His concept of morphogenetics helped in the development of the NES system and formed a corner stone to biophysics theory.

The most significant breakthrough in the history of biophysics came in the early 1960s with the work of Richard Feynman, a world-famous quantum physicist who is considered one of the most significant physicists of the 20th century. His principle work included the development of the Quantum Electrodynamics (QED) Field, which forms the foundation link between quantum physics (the study of the behaviour of subatomic particles) and biology. QED, in essence, explains how atoms and cells communicate with each other and forms the basis of quantum biology and biophysics.

Scientists quickly recognized that QED theory presented many possibilities for explaining a variety of poorly understood biological phenomena. Feynman's concept revolved around the exchange of energy between an electron and a photon. This seemed to correlate with the ideas of Popp—cells emitting light for no apparent reason—and the well-known emission of electrons during a chemical reaction. It also related to earlier experiments showing energy discharges from living things in a high voltage electrostatic field known as Kirlian photography. The crucial point is that a QED field unites various forms of energy: electrical, light, gravitational and magnetic.

At a more familiar level, holistic practitioners are able to monitor and influence the body's processes through techniques that do not fit well with the biochemical model.

- Acupuncture, the stimulation of subtle energy channels in the body by inserting tiny needles into specific locations on the skin, is an ancient art that is now an accepted method of treating a wide range of health conditions.
- Kinesiology (muscle testing) is used to reveal imbalances through demonstrating a weakening or strengthening of muscle groups.
- Iridology is a science that demonstrates that organs and functions are reflected in specific parts of the iris. Indeed, an experienced Iridologist can perform a full, detailed health examination solely through this kind of eye analysis.
- Flower essences are used to bring about emotional changes using the 'essence' of a plant, with little relation to its chemical make-up. The list goes on, and the conclusion must be that living organisms are far more than a sum of physical and chemical parts and that there is an interconnectedness between that of living organisms and the larger universe as a whole.

In summary, there is now a huge body of evidence that suggests that biochemistry only offers a partial explanation to the function of complex life forms. There is a far more subtle side to our being that has yet to be fully explained.

## **2. The Biophysics of Pathology**

Fundamentally, pathology is about understanding why and how people become ill and, from this knowledge, determining ways of dealing with illness and disease.

Western and Eastern medical practices have developed highly sophisticated yet significantly different means of 'diagnosing' and explaining health issues. Both systems have their place and the new science of biophysics has extended these principles by looking at the body functions with an open mind, and also through a detailed understanding of quantum chemistry which has brought a new understanding of pathology and treatment methods. In this section, we explore the principal considerations of pathology from a biophysics perspective.

### **2.1 Western Pathology**

Pathology is the medical science which concerns itself with changes produced in the body in the course of disease and with the etiological causes of such alterations.

Clinical pathology is based on a biochemical model of the body and focuses on differential diagnosis, i.e. distinguishing diseases from one another. This is achieved through observing symptoms and correlating them with laboratory analysis, imaging techniques and other forms of biological investigation.

Real progress in pathology was not made until the nineteenth century, with the development of the microscope. Today sophisticated microscopy is an important tool in detecting tissue change using biopsy procedures, where small sections of living tissue are removed and examined. Other diagnostic techniques for testing body fluids and tissues for abnormal composition or metabolism include electron microscopy, immunology and cytochemistry. The development of X-ray, CAT and MRI scanning techniques has progressively advanced the ability for doctors to 'look' into the living body and identify physical disturbances.

Consistent with the model of Western medicine, pathology is divided into various categories and areas of specialty, each in relative isolation from the larger pathological picture.

- Microbiology - the study of micro-organisms such as viruses, fungi, bacteria and parasites - forms a significant part of the Western approach.
- Toxicology, the study of the biological impact of toxic substances, is highly relevant for today's polluted environment and unhealthy lifestyles.
- Gastroenterology addresses digestive tract diseases, entailing a large proportion and wide range of health complaints.
- Haematology looks at diseases of the blood.
- Endocrinology considers hormonal imbalance and disease.
- Neurology focuses on nerve disorders.

- Dermatology covers the gamut of skin complaints.
- Gynaecology limits itself to the reproductive tissues.
- Cardiology restricts itself to heart complaints.

In spite of this sophistication, there are anomalies and unexplained factors in Western pathology and the whole of mainstream medicine. In fact, despite the vast amount of information available to biochemists, there is no real understanding of the cause and cure of most chronic health conditions. A significant and growing percentage of Western populations are sicker than ever before.

## 2.2 Eastern Pathology

TCM has also much to say about the causes of disease, though from a very different perspective to the Western approach. It emphasizes a variety of disease-producing factors that may invade the body, resulting in ‘syndromes’, as TCM refers to them. The key to health is seen as a balance in activity, diet, climate, emotions and lifestyle. Any long-term imbalance can become a cause of disease. These causes are traditionally divided into two categories or levels:

1. Internal factors – emotions.
2. External factors – weather (wind, cold, heat, damp, dryness), constitution, fatigue, diet, sexual activity, trauma, parasites, poisons, harmful treatments, etc.

TCM describes the effects of these causes through an elegant set of ‘patterns’ that form an intricate, interconnected and holistic view of the body and its response to the environment. TCM regards the whole as greater than merely the sum of its parts, to be treated accordingly.

TCM diagnosis relies on a series of subtle yet immensely informative techniques, including pulse and tongue diagnoses.

- The colour, texture, shape, coating, size, degree of moistness, presence of spots and physical steadiness of the tongue, are all revealing aspects to a person’s health.
- Pulse diagnosis relies on a practitioner feeling subtle aspects in the heart pulse. A practitioner uses a finger to sense the pulses in the radial artery above the wrist, and on three regions (positions) along the radial artery on both wrists. On each region the pulse is palpated at three pressures; light, moderate and firm. The detected pulse is differentiated in terms of depth, speed, strength, shape and rhythm. Different conditions of the pulse indicate different syndromes. A skilled practitioner (it takes at least seven years to develop the skill to a good level) can tell a huge amount about a person’s current and past health from the information gained through the pulse.

From information gained through examining the tongue and feeling the pulse, a precise, personalized treatment plan is devised, which may include insertions of acupuncture needles into acupuncture points, herbal preparations, moxa (application of localized heat) and cupping (vacuum

suction on specific body regions). After the treatment, the pulses can be retaken and the effectiveness of the treatment determined.

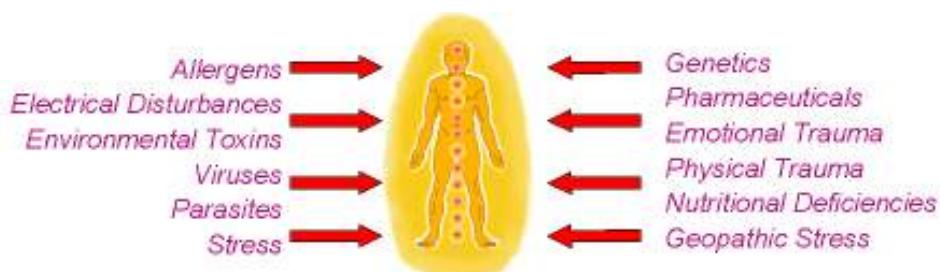
## 2.3 Biophysics Pathology

Biophysics is the science that links the ‘real’, experimental world with the ‘virtual’, unseen, energetic world associated with subatomic interaction and Quantum Electrodynamic (QED) body-fields.

From a biophysics perspective, much of conventional pathology is observable and real. People do catch viral infections, break bones, suffer hormonal imbalances, experience organ failure and develop allergies. At the other end of the spectrum, the concepts of Oriental pathology dealing with the energetic aspect of illness are thousands of years old, and as accurate and applicable today as they have ever been. Thus, any complete picture of human health and disease must include and integrate both these views as well as others.

Biophysics pathology encompasses both these perspectives and adds the unique concepts of advanced quantum chemistry to the equation. What follows is a discussion of the ways in which biophysics broadens our understanding of pathological processes, as seen from both Western and Eastern perspective.

### 2.3.1 The Effects of Stressors on the Bioenergetic Body



In life, the body experiences internal and external stressors and shocks. Normally it responds and adapts, negating these impacts and returning the organism to a normal, homeostatic state. Large shocks (physical trauma, emotions, food poisoning, etc.) or small, persistent stresses (gradual build up of toxins, emotional stress, poor posture, etc.) can lead to damage of the body-field’s components.

Today’s environment puts us under continual attack from numerous sources, many of which did not exist even 50 or 100 years ago. Global travel, electrical technology and advances in the chemical industry have added literally tens of thousands of new stresses to our environment and to our bodies. The modern lifestyle, with its high stress, poor nutrition and isolation from nature, has ironically reduced our ability to fight off shocks and stresses.

Disease and/or the lack of optimum health can be seen as an accumulation of various shock impacts on both the physical body and the Human Body-Field (HBF). Disease is not simply caused by ‘bad

genes' or psycho emotional stress; neither is it solely due to toxin overload from a polluted planet. If all illnesses could be reduced to just one cause, it would not be possible to explain why some people live in a pristine, stress-free environment and become ill, while others remain in perfect health no matter how polluted and stressed their life becomes. The only rational answer is that illness is multi-causal, a combination of many types of shocks that occur on a physical and energetic level.

The aim of NES infoceuticals is to address the many factors that disturb the organism and restore the body to a state where it can function correctly and readily adapt to changes.

Relevant to this concept is the work of Dr Ryke Hamer, a German physician who has been conducting research in this area since 1978. It was in that year that his son was shot while sleeping. The wound was not fatal and the son survived, but developed cancer some three years later. Researching into this phenomenon, Dr Hamer became convinced that biological shock and 'conflict' were the leading factors in the genesis of cancer. He formulated a number of bioenergetic principles related to what he has called the 'New Medicine'.

1. The first rule he discovered was that a 'shock imprint' affects the individual in the specific sequence: mental function, the physical brain, a localized organ and the skin.
2. The second principle describes how every disease has two phases. The second phase is an attempt at resolution of the conflict.
3. He also considered classifying diseases according to whether they created heat or stopped its production. These ideas correlate well with the body-field theory.

Biophysics experiments have shown that shock can be defined as the distortion or collapse of the body-field in a localized area. Creation of heat in the body is related to the behavior of subatomic particles, which by the nature of their movements are responsible for the creation of the body-field itself.

Dr Hamer has published a map of a deep brain structure, the medulla, which shows links to different organs of the body that are affected by the imprint of a shock. Using radiological techniques, he has imaged thousands of brain segments and, in the case of serious diseases, demonstrated many sets of concentric rings. These cannot be explained as normal interference patterns generated by the equipment, and are, quite literally, the residue of shock waves reverberating through brain tissue.

The shocks that affect us can be physical, chemical, surgical or emotional in nature. Psychotherapists have different names for the imprints left by these shocks. Simply, they can be thought of as a recorded message on a kind of tape loop that repeats and plays day and night, sending out destructive information to the HBF. It is well documented that cancer frequently develops after a physical blow to the body. Dr Hamer has claimed that these repeating messages are the basic cause of cancer development after a physical injury. He goes even further, saying that there is *always* an

element of shock involved in the development of this disease. What follows is a summary chart of the various kinds of shocks that concern us in biophysics pathology.

## 2.32 Summary of Biophysics Pathology

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| <b>1. Big Fields</b><br><p>Misalignment of the body's bioenergy fields with the Earth's fields may be caused by geopathic stress, polarity issues, travel and illness. This impacts the nervous system, sleep, heat distribution, mineral absorption, and generates metabolic disorders.</p>                              | <b>2. Polarity</b><br><p>The sum of activity in the body generates an electromagnetic field vital to the function of the HBF. The polarity of this field may be altered by emotional blocks, Earth-field misalignment and electromagnetic influences. Misaligned polarity causes huge disruption to the body-field.</p> | <b>3. Source</b><br><p>Source is vital for all chemical, energetic and reactive activity in the body. Its depletion by chronic illness, fatigue, toxins, stress and malnutrition results in a rigid, de-energized body system. Adequate source energy is an essential requirement for the health of the whole organism.</p>  |
|    |    |   |
| <b>4. Heart Imprinter Errors</b><br><p>The heart's function of imprinting information into the blood stream is fundamental to homeostasis. Errors and restrictions within the imprinting process will result in insufficient information reaching the cells of the body, and lack of coordination of their functions.</p> | <b>5. Drivers</b><br><p>Damage to the field of the Drivers comes from a variety of factors – heavy metals, chemical toxins, trauma, emotional shock, electromagnetic pollution – and reduces the overall presence of the HBF and its effectiveness in regulating life processes.</p>                                    | <b>6. Integrators</b><br><p>Energetic Integrators direct the transfer of information vital to biological functions. Toxins, microbes, radiation and other factors can distort this process, resulting in inefficient cellular and organ communication, disruption of body regulation processes and metabolic exhaustion.</p> |

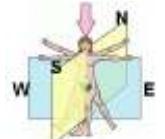
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| <b>7. Energetic Terrains</b><br><br>Energetic Terrains (ETs) are zones within the body-field that drive the body's immunity or self-healing capacity. Their principal function is the delivery of healing messages required to restore homeostasis when the HBF's functions are disrupted by toxic influences. ETs are formed by a combination of magnetic disturbances, DNA distortions and a weak body-field. | <b>8 Energetic Stars</b><br><br>Energetic Stars are reflective of the HBF survival mechanisms and metabolic pathways. Significant blockages in these cause major issues within the body.   | <b>9. Field Stability</b><br><br>Heavy metals and other toxins can create breaches in the structure of the Energetic Integrators. This results in an unstable, chaotic body-field, incorrect sequencing of body processes, and attendant fatigue and hypersensitivity. |
|    |   |   |
| <b>10. Neurology</b><br><br>Damage to neurons, axons, their insulating myelin sheath and synapses results in compromised neurological function. This severely impacts all body organs, systems, the mind itself and the HBF.  | <b>11. Metabolism and Toxins</b><br><br>Cellular metabolism is disrupted by toxins that damage both the cell membrane and the interior organelles. Both the cell energy (mitochondria) and control system (Integrators/ DNA) become distorted. | <b>12. Physical Shock</b><br><br>The memory of physical and emotional trauma is encoded in the tissues and is thus difficult to resolve. These distorting influences must be removed to return the body-field to normalcy.   |

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| <b>13. Nutrition</b><br><br>Nutrients are the basis of body structure and ongoing function. Trace minerals are vital for virtual information transfer and storage. Toxins inhibit their absorption. | <b>14. Emotions</b><br><br>Rigid mindsets, dysfunctional emotional states and emotional shocks can cause long-term errors in the body-field, leading to biological information blocking. | <b>15. Layering</b><br><br>Physical and psychological traumas and shock can cause blocks in the body-field which will not self-correct. This both initiates and perpetuates health issues. |

## 2.4 Biophysics Pathology Components in Detail

### 2.41 Big Fields

Big Fields relates to the basic, overall way in which the body-field is placed in the Earth's three principle fields (Big Fields). If the body-field is misaligned or distorted within the Big Fields, this problem must be addressed as a priority so that healing can occur. The Big Field consists of three axes – the vertical, the magnetic polar and the equatorial, which all interact with the body-field. In complex HBF errors the three axes of the body are found to be considerably compressed or stretched, and this can prevent correct reading of the Body Field. However, deviations between the Big Field and the body are easily rectified by use of the BFA (Big Field Aligner) Infoceutical, which has been designed to correct misalignments present in any of the three axes.



#### The Vertical Axis

The vertical axis consists of the gravity field, and its numerous effects on the body. This is an area that has long been investigated by NASA in their attempts to enable the human organism to withstand long periods under low gravity conditions.

This axis is also associated with what is commonly called geopathic stress. Such magnetic field variations are generated by the presence of underground watercourses, caves far below the Earth, or large metallic ore or oil deposits. These can significantly impact human health over the long term. Such factors explain why some places and regions on Earth are healthier to live than others – a fact that has been observed by every pre-modern civilization, and even today is appreciated by many cultures around the world.

In addition, there are slight variations in gravity from place to place on the Earth's surface. While these differences are not substantial, gravity interacting with other subtle energies does impact the

body-field. Thus, in susceptible individuals, these local variations in gravity can have a noticeable or clinical effect.

Conditions linked with the vertical field are often connected to nervous system dysfunction, as well as disturbed sleep patterns. Additionally, if an individual's health varies greatly, depending on whether they are upright or lying down, this may be an indication of a vertical axis energetic problem.

### **The Magnetic Polar Axis**

The iron core inside the Earth generates the Earth's polar magnetic field. This results in a huge field that reaches far out into space. This outer limit, termed the Van Allen belt, was discovered some 40 years ago. Naturally, all living things respond to this magnetic field, which is found at 90° to that created by gravity.

When there is an abnormality present in this field, there are changes in the processes by which the body creates and distributes energy and heat. If there are hot and cold regions located randomly around the body, this typically indicates an error in alignment with the magnetic polar axis. This axis also has a strong impact on iron-rich haemoglobin.

### **The Equatorial Axis**

The equatorial axis is situated at 90° to the north–south axis, and can be thought of as the rotation of the Earth. Polar magnetism was already known to the ancient Chinese and incorporated into their scheme of medicine. They understood that the microcosmic body is a mirror of the macrocosmic Earth, a poetic way of saying that we are deeply affected by these environmental energies.

The idea of an east–west or equatorial energy involves the phenomenon of paramagnetism. Some substances, even though not iron-based, react to magnets. This paramagnetic effect occurs in the soil, where the concept is used in agricultural measurements. But it also takes place in the body, and low readings for paramagnetism may indicate that the body is not able to absorb trace minerals from food.

This part of the body-field corresponds to the way the organism responds to electrons and ionic charges, including those of hydrogen and oxygen. Thus, it is connected to the body's functions and physiology. Most importantly, it relates to detox reactions. Oxidation (free radical formation) and antioxidant function are central to the entire process of physiology, and to gradual tissue damage by internal and external toxins (including the phenomenon of aging). Antioxidants are needed each moment, in order to protect against oxidation occurring constantly as part of cellular respiration.

The liver, colon and metabolic diseases in general are most affected by errors in the equatorial axis.

## 2.42 Polarity

The sum of the body's biological and atomic activities generates an overall electromagnetic field that fully encapsulates the body. This field plays a vital role in the formation of the HBF and its quantum level activity. If this field becomes negatively charged and/or adopts a left-hand spin, there will be huge disruption to the quantum fields. This will result in disturbed energy flow.



- It is quite difficult for the body to engender positive charge unless polarity is normalized.
- Emotional blocks, stress, electromagnetic disturbances of all kinds, air travel, geopathic stress, toxins and chronic illness can all create polarity issues.
- The PL Infoceutical is used to re-establish polarity to its original, optimal state.

## 2.43 Source



Source can be considered as the primary catalyst for all energetic and chemical activity in the body. It forms a basic resource for all our energy and is the vital essence that gives life. Source is formed from the virtual 'paramagnetic confetti' contained within the cavities of the body, a concept explored in a later section.

In simple terms, Source provides the energy and ability for information, cells and ultimately the body as a whole to adapt to environmental change. Thus, with depleted Source energy, the ability for chemical reactions to occur is reduced and the ability to react and adapt according to changing needs is inhibited. Loss of Source leads to a rigidified and degraded regulation of body processes.

Source energy is gathered and contained in all the body cavities, which includes the cranium, chest, abdomen, every organ, the vascular system, etc. Source energy is contained within a cavity by means of an energetic field generated by the epithelial cellular lining of the cavities. This membrane can be damaged by micro-organisms, chemical toxins and physical trauma. Such damage results in a breakdown of the containment energy field and the subsequent leak of Source energy.

The body cavities not only store Source energy, but also accumulate it from the environment. Day-to-day activity depletes Source energy - when we sleep, Source is replenished. Insomnia, stress, excess physical activity and fatigue all reduce the body's level of Source energy.

It is an observable fact that during sickness people experience more fatigue and require more sleep. When the body comes under attack from a pathogenic factor, the immune system becomes more active, biochemical activity increases and as a result there is a greater demand and subsequent drain on Source energy. Thus, rest and sleep are needed, allowing Source to be replenished. If a patient's ProVision scan indicates Source energy depletion, it must be addressed as a priority since without Source energy, little positive change can occur.

ED-1 (Source) Infoceutical has been formulated to aid the accumulation and containment of Source energy.

## 2.44 Imprinter



Internal body information transfer is crucial to correct regulation and maintenance of body activities. The Imprinter Driver forms a vital part to the information transfer process. The Imprinter Driver field is generated by and oversees the process of imprinting nervous system information into the blood via the heart. The blood distributes this information to every cell of the body. This information basically contains core instruction for cellular activity - essentially the instructions required to maintain homeostasis.

If the imprinting process is impaired in any way then the information transfer is compromised, resulting in reduced coordination of cellular activity. Physical and energetic disturbances to the heart have a large impact on the imprinting function.

The Imprinter Driver ED-2 also has energetic links with rough and smooth Endoplasmic Reticulum (ER) and ribosomes found within cells. These organelle functions include protein and lipid synthesis, detoxification, inter and intra cellular molecular transportation, conversion of cholesterol to steroids and detoxifying foreign proteins.

ED-2 Infoceutical has been designed to restore integrity to the Imprinter Driver field and thus ensure optimal information transfer within the body. It is often used in early treatments due to its effect in correcting metabolism through its action on cellular ER.

## 2.45 Energetic Drivers



Driver fields are produced by chemical, electrical, ionic, sonic, neural and physical activity within the 16 Driver organs and systems. The Drivers are associated with catabolic chemical activity (complex molecules being broken down into simpler ones with resultant release of energy). Together, the Driver fields combined provide the overall energetic field necessary to support and energize the function of the HBF.

Each Energetic Driver (ED) is associated with the formation (maturation) of specific body cells, particularly the immune cells, thus the EDs form an important part in maintaining the immune system function.

Physical and energetic issues, including stress, toxins (organophosphates, vaccination, dioxins, asbestos, fungicides, electromagnetic radiation, heavy metals and PCP) and emotional shock within a driver tissue, degrade the integrity of the driver field and thus upset the HBF balance and its ability to oversee body activity. Full details of these stressors and pathological considerations are given in the Certificate Modules.

ED Infoceuticals are designed to restore integrity to Driver fields, promoting associated tissue functional health, immune function and energizing the HBF.

## 2.46 Energetic Integrators



Regulatory information passed to cells via the blood is interpreted into cellular activity instruction by the Energetic Integrators (EIs). The Integrators exist as magnetic vector enteritis within the energy field surrounding DNA. Various shocks can cause two principle types of issues with the Integrators. Firstly, there can be interference with the deciphering process (distortion) and secondly, information may be redirected or rerouted along the wrong pathway (diversion).

Distortions of the EIs are associated with parasites, fungi, bacteria, pharmaceutical drugs, ionizing radiation, X-rays, microwaves and geopathic stress. The diversion of information transfer is associated with toxic chemicals, physical trauma, emotional shock, heavy metals and surgery.

The energy required for the Integrators to govern communication is small. In fact, the paths that information normally takes are termed as zero energy pathways. Where the directing function of the integrators has become distorted, considerable amounts of energy are required to generate communication along real and virtual pathways. This inefficient state results in energy depletion and fatigue. The pathological considerations of the 12 EIs are covered in Module 3. The EI range of Infoceuticals has been designed to return integrity to the EIs.

One of the key uses of the information transfer process governed by the integrators is that the production of proteins and errors in this process can result in pathology. This vitally important consideration is explored further below.

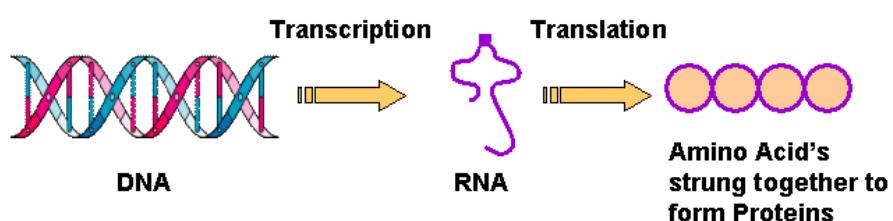
### Integrators and the Production of Proteins

A significant aspect of organic physiology is the cellular synthesis of proteins. If this production process is erroneous in any way, chemical and cellular disease states are the eventual results. We will first review the Western physiological understanding of protein synthesis, before investigating the biophysics component that sheds new light on this process.

Cells synthesize numerous chemicals in order to maintain homeostasis. But a large share of our cellular machinery is strictly devoted to the production of proteins. Some of these proteins are structural, helping to form plasma membranes, microtubules, centrioles, flagella, cilia, the mitotic spindle and other cell organelles. Extrinsic proteins are secreted from the cell as hormones, antibodies and contractile elements for the muscle tissue (myosin, etc). Still other proteins serve as enzymes that regulate the myriad of chemical reactions that occur in cells. Thus cells are basically protein factories that constantly synthesize large numbers of diverse nitrogenous compounds, which determine the physical and chemical characteristics of cells and ultimately the organism as a whole.

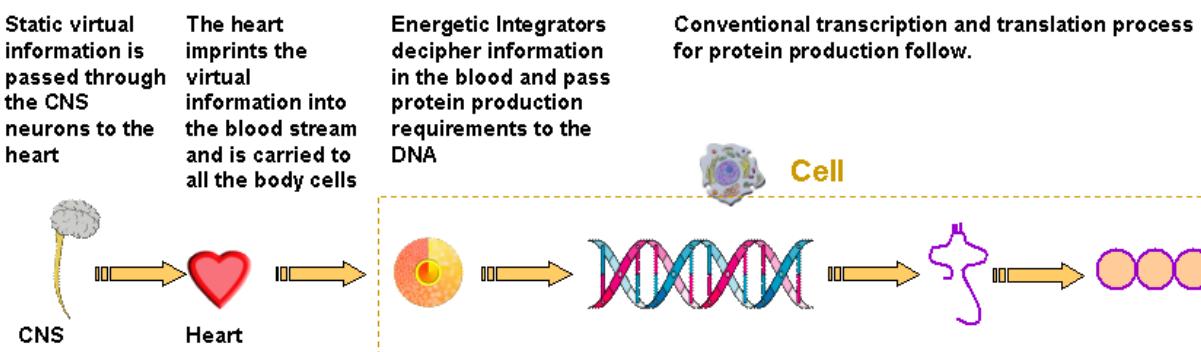
The genetic instructions for making proteins are found in DNA, and cells make these proteins by translating the genetic information encoded in the DNA structure. This genetic code resides in the linear sequence of nucleotides and consists of 64 three-letter code words, or codons. Each codon contains the code for one of the 20 amino acids from which proteins are synthesized. The genetic information encoded in the DNA is used to program the manufacture of proteins in two stages.

In the first stage, the information is transcribed from DNA on to a molecule of messenger ribonucleic acid (mRNA). In the second stage, the mRNA transports the information to the protein manufacturing centres of the cell (ER and ribosomes). This is where the information is translated from the codons in the RNA into a linear sequence of amino acids, which are converted into protein.



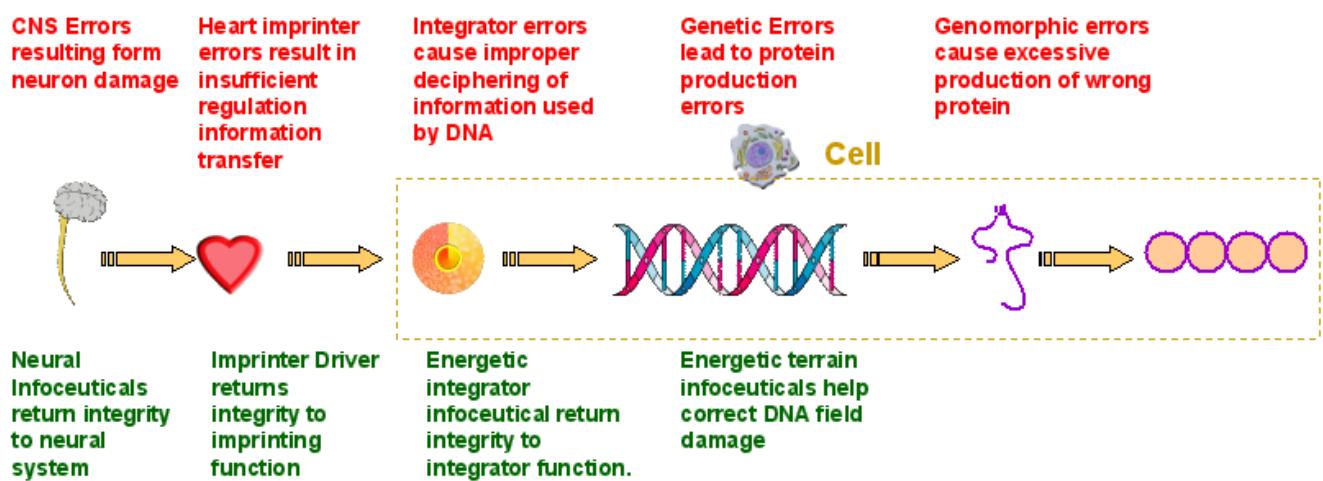
### Biophysics of Protein Synthesis

A basic understanding of these biological principles assists our special knowledge of the emerging science of biophysics. In biophysics we understand the heart's unique function in transferring and imprinting information from the central nervous system (CNS) into the bloodstream. This virtual information is required to maintain homeostasis and flows in and through the blood to every cell of the body. When this information reaches the cells, the EIs (contained within the cells) decipher it and pass the relevant instructions to the physical DNA, informing it (among other things) as to which proteins it should be synthesising.



## Biophysics of Protein Pathology

In this chain of events, there are a number of places where 'errors' can occur, causing incorrect proteins to be produced. Damage or inherent defects within the nervous system result in incorrect instructions being transported to the cells. If the heart does not imprint the right information, or does not send an entire packet of data, this will also be reflected in the protein production process. If the EIs have become distorted, the deciphering process will be impeded. Genetic errors in DNA result in incorrect proteins being produced. If proteins, the building blocks of our physical being, are not produced in the way intended, this obviously becomes a fundamental problem.



## 2.47 Energetic Terrains

Energetic Terrains (ETs) are zones within the body-field that drive the body's immunity or self-healing capacity. Their principal function is the delivery of healing messages required to restore homeostasis when the HBF's functions are disrupted by toxic influences. ETs are formed by a combination of magnetic disturbances, DNA distortions and a weak body-field.

ETs are energetically linked to the field component of disease-forming microbes (viruses, bacteria, fungus, etc). When functioning incorrectly, they appear to provide an energetically supportive environment or 'terrain' for specific microbes. Their presence is highly disruptive to the function of the HBF and they need to be cleared in order to aid recovery.

The likelihood of ETs malfunctioning increases when the HBF's integrity is compromised through EMF, chemicals, trauma, exhaustion, emotional upset, polarity, sleep loss, etc. Distorted magnetic fields produced by geopathic stress, solar flares, Curry grids (grid of energetic lines on the Earth's

surface), cellular DNA errors etc. are catalysts for ET malformation. The DNA error can result from microbe damage or from the blockage caused by the incorrect alignment of the body-fields.

The presence of an ET malfunction does not mean that the associated micro-organisms are present. It simply means that an environment has formed that provides potential for them to exist in particular tissue sites. ProVision detects the energetic distortion. The real microbe may or may not be present. We cannot say.

A malfunctioning ET may have the property of shielding microbes or disabling the immune system so they cannot be detected within the affected ET tissue.

ProVision reports on 16 distinct ET types. The ET Infoceutical range has been designed to provide the information to allow the HBF to correct field errors associated with ETs. The associated cellular genetic damage and microbe supportive environment is correspondingly corrected.

When a microbe supportive terrain is removed, the organisms it may be shielding, if present, become exposed to the immune system, which will set about destroying them by normal biological means. This may result in short-lived associated symptoms.

## 2.48 Energetic Stars

The body provides itself with mini-information networks which function as sub-systems of the more complex Big Body Field. These subsystems are known as Energetic Stars (ESs). These are arranged in a strict sequence that gives the body a maximum assurance of survival, so ES-1 is the most important for survival, followed by ES-2 two, etc.



ES Infoceuticals are used in cases where there appears to be blockages restricting the effects of NES treatments, or where energy is needed to re-establish processes from the ground up. They have been designed to help re-establish systems in the body that have been compromised. The complete correction of a Star system can have an effect on the entire body. This is explored in Module 5.

## 2.49 Field Stability



Toxic elements and compounds of aluminium, silicon, barium, tin, phosphorus, rhenium, lead, gold and actinium can cause breaches in the entry and exit points of the Energetic Integrators. This results in an unstable and chaotic body-field, a potentially serious situation. Physiological processes begin to occur in wrong or random order, causing biological inefficiency in the organism as a whole.

This tends towards biochemical abnormalities and cellular pathology. On a chemical level, toxins are formed that affect the working of the mitochondria, the cell's energy centres. Severe fatigue is a common consequence of this state. Clients may also become sensitive to the environment and show reactions to environmental factors. City air pollution, cigarette smoke, pesticide-laden and non-organic food and alcoholic drinks with many additives are typical foci for this kind of hypersensitivity.

A good indicator to stability issues is if Polarity, Source and Imprinter are reported as priority issues.

## 2.50 Nervous System



The neuron cells consist of various parts: the cell body (contains the nucleus), the axon (long thin process), dendrites (nerve endings), the myelin sheath (coating of the axon), the synapses (gaps between nerve endings) and the neurotransmitters (chemical messengers in the synapses gap). All these parts are energetically unique and there are major categories of energetic treatments for each. In biophysics terms, the nervous system generates a field or 'ionic pulse' as the nerve impulses travel along the axons. This field facilitates the transmission of virtual information; the vital part of our being that is invisible to biochemical analysis but fundamental from a biophysics perspective. Physical and chemical issues in the nervous system will inhibit the flow of the virtual information and result in biophysical pathology.

In Western allopathic medicine, there are no 'cures' for nervous system diseases, only drugs designed to help with symptomatic treatments to increase (Prozac) or inhibit (pain killers and anaesthetics) neurotransmitters. The biophysics approach goes much further.

### Motor and Sensory Neurons

The cell nuclei of the afferent (towards the brain) and efferent (away from the brain) fibres are found in the cortex of the brain. The afferent nerves are the source of major tracks that provide sensation ascending from the periphery of the body via the spinal cord. The efferent pathways send motor impulses down the spinal cord to muscles throughout the organism. Damage to the fields of these nerve cells results in sensory or motor disturbances. This also affects the neurons related to the eyes and ears where these appear on the cortex.

### The Axon

Damage to the outer axon and its outer neurons, such as occurs with multiple sclerosis, heavy metal poisoning, etc. causes a break in the ionizing pulse that travels on the outer surface of the axon. This pulse is an important aspect of the Nerve Driver and is vital for correct information flow along the axon.

### The Synapse

Synapses are the gaps that occur between two nerves. Chemical messengers are released to transfer the nerve impulse along the lines of transmission. Synapses are also where virtual information and photonic transfer occurs.

Disturbances of nutrition, microchemistry and neurotransmitter function profoundly affects the health of this process. This occurs due to the usual cast of toxic characters, but particularly heavy metals (lead, mercury, aluminium, cadmium) and viral residues. Symptoms include mental fatigue or neurasthenia, narcolepsy, learning difficulties in children, poor language and math development, etc.

## Triglycerides

Triglycerides are the chemical form in which most fat exists in food as well as in the body. They are also present in blood plasma and, in association with cholesterol, form the plasma lipids.

Triglycerides in plasma are derived from fats eaten in foods or made in the body from other energy sources such as carbohydrates. Calories ingested in a meal and not used immediately by tissues are converted to triglycerides and transported to fat cells to be stored. Hormones regulate the release of triglycerides from fat tissue, so they can meet the body's needs for energy between meals.

Fats are extremely important for the correct functioning of the body. If there are problems with their formation, it leads to reduced performance, particularly the nervous system. Organophosphates present in the environment find their way into these fats and can cause chaos within the body-field. One must avoid trans-fatty acids, whether manufactured or created through heat-induced rancidity from cooking. The correct ratio of fatty acids, monosaturates and saturated fats is essential.

## Infoceuticals

ES-3 and ED-4 are the principle infoceuticals used to address nervous system issues.

- ES-3 Infoceutical is designed to re-energize the nervous system, aid the re-establishment of CNS function and benefit the axon, neuron, dendrites and neurotransmitters. It may help with neural cell regeneration and the excretion of toxins, particularly heavy metals that may be affecting the nervous system. Heavy metals in the head greatly increase the negative effects from electromagnetic fields.
- ES-3 has also been designed to correct triglyceride (nerve fats) issues, including inducing detoxification and aiding their metabolism, and also distortions in the nerve field caused by moulds, fungi, protozoa and yeast. This may be related to motor and sensory neurons and be associated with neuron pain.
- ED-4 (Nerve Driver) has been designed to return integrity to the nerve driver fields and thus aids nerve functions and help with the excretion of damaging toxins.

## 2.51 Metabolism and Toxins

In a general sense, metabolism includes all the physical and chemical processes by which the living body is maintained. This includes the processes that make energy available for various forms of biochemical work. The constructive processes by which raw materials are adapted for the use by the body are collectively known as *anabolism*. The destructive process whereby energy is produced from the breakdown of stored materials within tissues is known as *catabolism*.



Loss of energy is an eventual symptom of literally every form of disease, yet little is made of this important clinical sign in Western medicine. For a deeper insight, we can look at the 16 Energetic

Drivers. These form a dynamic arrangement of the body-field that ensures production of energy. The organs of the body are designed to produce this energy, and when this function falters, there is inefficient metabolism and resulting tiredness. Trying to extract further energy from a failing system creates even more stress. Thus, the fatigue does not come from outer factors, but from within, as the organism uses incorrect pathways to attempt to compensate for reduced energy.

At the cellular level we find a similar situation. The cell nucleus is surrounded by many partially understood structures, bathed in protoplasmic fluid. Biophysics studies have centered on the mitochondrial structures that create energy as they interact with other structures in the cell. Where the big field of the body and the cellular field meet is in Cell Driver, thus ED-3 is an especially important infoceutical for generating energy.

There are approximately 20 environmental tests within the NES system designed to demonstrate the impact of various toxins found in air, water and food. Testing shows that all of these interact with the DNA at some level, and influence the mitochondrion at an energetic level. If it is true that the subatomic particles control what goes on in a chemical reaction, we have the source of the feelings of tiredness that pervade the sick.

Recovering energy involves getting rid of environmental toxins. These toxins can exist at a chemical level and can be measured by conventional means or in the quantum world as virtual ‘pictures’ of toxins and cannot be detected by conventional means. The ‘pictures’ or energetic disturbances can cause as much disruption as the real chemical toxins, and the NES system offers the most practical way of detecting the body’s ability to deal with these issues.

Another major loss of energy is caused by attacks of micro-organisms. A huge amount of the body’s energy is devoted to defending itself, minute by minute, against attack by molds, fungus, yeasts, bacteria, viruses and other parasites.

## **Oxygenation**

Oxygen is essential for all higher life processes, including cell respiration, elimination of toxins and hindering the growth of foreign organisms (parasites, pleomorphic organisms, viruses and bacteria). Therefore, improving the oxygenation of the blood can help in a variety of ways, not the least by a general increase in energy and vitality. Optimizing EI-2, iron levels, vitamin B12 and the ED-7 (Lung Driver) all help in increasing blood oxygen levels.

## **Fat Detoxification**

The part of the body-field concerned with helping the liver cells to break down and metabolize fats can be affected by external environmental factors, including plastic residues, hormonal broadleaf sprays and certain dioxins that are released into the air by industry and a variety of medical drugs. These lipid-bound toxins stay within the liver and adipose tissue throughout the body. While they

are thus somewhat insulated from entering the general metabolism, their presence has long-term effects of health, disease predisposition and aging.

### **Base Rate Metabolism**

Metabolism is impacted by the environmental toxins that affect the function of the cells in general, the liver, the thyroid and pancreas. In these cases, ES-13 (COH star) Infoceutical can be used to correct this lowered metabolic rate, while other infoceuticals may be needed to correct the deeper issues, imbalances and toxins that have created this pathological state.

### **Toxins that Affect Metabolism**

There may be more than 100,000 toxic chemicals present in our environment, with 1,000 new ones being added each year. As far as we know, the long-term effect of most of these toxins not been studied, and their interaction or composite effect is completely unknown. The Environmental Detox Infoceuticals are able to correct for the genotoxicity of foreign chemicals with their noxious ability to distort the DNA morphogenetic field.

All of the toxic chemicals mentioned cause severe distortions to the human organism and have measurable effects on the HBF. It is believed that there is no safe exposure limit for any of these. It may be possible to correct genotoxic biological damage by helping the body to produce specific repair enzymes.

The ProVision scan detects the body's functional ability to deal with damaging toxins. It is more a measure of the presence of energetic damage caused by toxins to the body-field after they have been assimilated into the body structure. ProVision does not detect the actual presence of chemical toxins themselves: this can be difficult because they combine in complex ways with the numerous other chemicals in the body. Therefore, this form of screening is, in some ways, a scientific advance on laboratory analysis and blood tests.

By inference, if body-field damage is detected, we can say one of three things: the toxin *was* present, *is* present or some other toxin caused similar damage. We cannot say which of these is the case, only that the energetic damage is present and the body is unable to fully deal with that particular toxin. The infoceutical treatment is designed to correct the damage to the bioenergetic field.

Toxins, microbes, etc. not only exist at a physical level (real) but also at an energetic (virtual) level as pictures or templates. Just removing the physical is not always sufficient, as residual virtual templates also need to be addressed. These templates offer an explanation to 'dormant' toxins, where symptoms associated with a toxin may flair up many years after the toxin was first introduced to the body. The infoceuticals modify the host terrain and environment so that toxins and microbes, both real and virtual, are no longer supported and, thus, can be expelled from the body.

In relation to micro-organisms of all kinds, we may take the view that a toxic body with a weakened immune system is more susceptible to parasites and external invaders than a healthy body. Indeed, different types of toxins cause weaknesses in different energy compartments and this in turn makes the body more susceptible to various types of infection. Rather than concentrating on destroying these life forms, we concentrate on detoxifying and vitalizing the body and the virtual field associated with it. Moreover, pleomorphic organisms have become resistant to immune efforts that eliminate them through mutation from environmental toxins. Ultimately It is only through biophysical means – such as infoceuticals – that they can be eliminated.

A full description of all the environmental tests performed by the NES system and appropriate remedial action is described in Module 7 of this course. Below is a summary of the environmental factors that can lead to shocks in the body-field:

- **Electromagnetic Pollution**

Biophysics research confirms that all radiation has a negative effect on the HBF. Furthermore, prolonged exposure can lead to severe distortion of EI-12.

- **Agricultural**

ProVision tests for agricultural pollutants. These are classified into antibiotics, fungicides and insecticides.

- Antibiotics are widely used in livestock rearing to reduce the likelihood of infection and to boost the rate of growth. As a result, there are many antibiotic residues in food products, most specifically dairy, poultry, beef and other meats. While some antibiotics are relatively safe, others damage the immune and nervous system and significantly impact the body-field.
- Fungicides cause distortions to EI-12, as well as the fields for lungs, liver, colon and stomach linings. These may be inhaled when used in agriculture or ingested with residues in certain foods.
- Insecticides are used extensively in agriculture and pest control, also entering the water supply. They can be absorbed via the lungs, skin and stomach and cause severe damage to EI-2, 3 and 7. They may also cause damage to the energy fields of the lung, small intestine, mucous membranes, heart, kidney, circulation and liver.

- **Fat-Based**

Since the 1950s, acrylamide has been used in the manufacture of paper and dyes and in the filtration of drinking water and wastewater. It has a distorting effect on EI-4 and also affects the energy fields of the CNS, lung, heart, stomach lining and large bowel lining.

- **Water-Based**

Arsenic and antimony occur naturally in rocks and soil and leach out slowly into reservoirs, where the soil has been disturbed or mining has occurred. Chlorine is added to most water supplies and apart from its significant toxicity, it also combines with hundred of carbon-based pollutants, creating a highly complex toxic ‘soup’ of organochlorides.

- **Airborne**

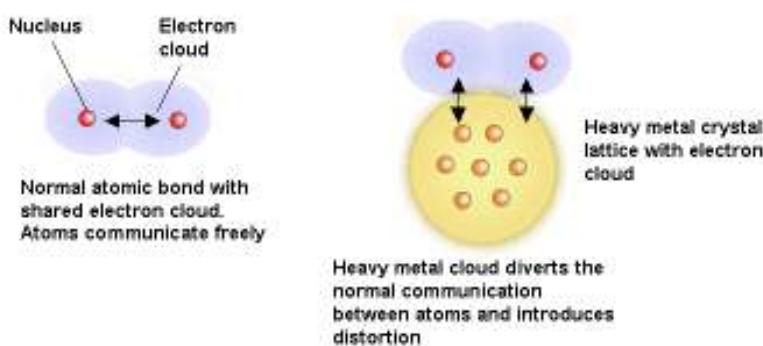
The air we breathe carries a whole array of environmental toxins that are damaging to the body-field. Principle among these are: asbestos, carbonyls, dioxins, 4-Phenylcyclohexene, dioxane, petrochemicals, industrial chemicals and tobacco smoke.

- **Household**

- Some dyes affect the energy fields of EI-12, plus heart, circulation, bowel lining and stomach.
- Chemicals off-gassing from new furniture and carpets often react with ozone in the home to make aldehydes which affect EI-4.
- Solvents found in paints, dyes, gums, printing, petrol and varnishes affect the energy fields of the heart, circulation, bowel lining, brain and stomach lining.

- **Heavy Metals**

Heavy metals form organic compounds rapidly inside the body which are difficult to remove. These compounds are found in muscle tissues, blood, neural fats and bone. All heavy metals have an impact on EI-11; EI-11 Integrator is effective in helping combat their presence.



## Infoceuticals

The detailed use of Infoceuticals to address environmental toxin damage is covered in Module 7 and is summarized below:

- **EI-1, 2, 3, 4, 10, 11, 12** – Each of these Integrators are affected by specific toxins, and by taking the appropriate EI Infoceutical the distortion effects will be addressed.
- **ES-3 Nerve Function** – This Infoceutical has been designed to aid the detoxification of the nervous system, particularly from heavy metals, which effect the synaptic transfer.
- **ES-4 Triple Cavity** – This Infoceutical has been found to have a general detoxification effect, as well as integrating the three principle body cavities and harmonizing endocrine activity.
- **ES-14 Cell Metabolism** – This Infoceutical has been designed to aid the detoxification of cells and thus re-establish their correct functionality and metabolic processes. It can be used as a general environmental detoxifier.
- **ES-5 Heavy Metal Detox** – This Infoceutical has been designed to aid the removal of toxic heavy metals from the body.

## 2.52 Physical Shock



Shocks to the HBF can occur from physical injuries or trauma. Shock is recorded as a memory within tissues and on a virtual level, and can often be difficult to resolve. A shoulder or knee injury can still hurt years later and never seem to heal properly. This is because the body-field in this area has been distorted from its correct virtual position and needs reminding of its original spatial configuration.

Shiatsu and acupuncture often do not treat the area of pain directly, but rather treat related meridians. This frequently resolves the problem due to correction of the body-field where the meridian passes through the relevant tissues. As the correct messages for the body-field are fed to the injured part of the body, the tissue returns to homeostasis, with attendant relief of pain, spasm and chronic inflammation. All these physical symptoms are simply manifestations of an unresolved energetic disturbance.

Every part of a person's body is communicating with energetic information that can be treated with a specific combination of Energetic Integrators. Just as an acupuncturist will treat an acupuncture point in your hand to cure a headache, EI's can give the body-field the information it needs to return to its correct structure. The physical body must follow.

## 2.53 Nutrition

Vitamins, minerals and other nutrients are required by the body to reach optimal health, and reductions in their levels affect the performance of various Drivers and Integrators of the HBF. Although infoceuticals are able to make corrections to the body-field regardless of nutritional



deficiencies, please note that if there are repeated errors in the nutrition section of ProVision, diet should be carefully evaluated in order to increase the ingestion of required vitamins, minerals and antioxidants.

The biophysics view is that a large part of nutritional deficiencies are a result of environmental toxins interfering with the body-field, inhibiting the proper uptake and balance of nutrients within cells. Through the use of infoceuticals and body-field correction, the organism can begin to assimilate and metabolize food far more effectively, correcting nutritional deficiencies.

While ProVision does not directly detect nutritional deficiencies, this may be indicated if successive readings indicate an issue with a particular nutrient. Supplements to correct these errors should be prescribed based only on thorough and expert nutritional knowledge, rather than on test results alone. Different combinations of vitamins and minerals interact together in complex ways. For example, excess Vitamin C inhibits copper absorption and high doses of vitamin E are immunosuppressive. Infoceuticals concentrate on correcting malabsorption and the nutrient balance within cells and organs.

Module 7 gives advice on the correction of nutritional deficiencies.

## 2.54 Emotions



Biophysics researchers have extensively tested Dr Hamer's theory that the medulla, a structure contained in the brain and linked to all organs, can be deeply imprinted by shocks. There is an energetic field link between the medulla (the old brain), the pyramidal fibres, the spine, the organs and the skin. This indicates that disease is dynamic, i.e. it moves from one part of the body to another. Additionally, the 12 compartments or Integrators of the body-field can be correlated with different parts of the medulla. Thus, if a shock is localized, it will have a specific, rather than a general effect.

All 12 of the main acupuncture meridians pass through the medulla, and different parts of the medulla fit into each of the 12 Energetic Integrators. Thus, the medulla can be thought of as being responsible for control of emotional states. The medulla, and hence one's dominant emotional state, can be effected by all types of shocks – not only emotional – which can cause emotional 'tape loops' to develop.

An emotional tape loop is similar to a repetitive computer program that, in this case, continually governs behaviour. These vicious cycles are often triggered when under stress or tired. They can be repeated again and again, with little awareness that these emotional patterns are damaging and self-defeating. Often there is no rational past experience that would explain such resulting behaviour. Bioenergetically, these are caused by a fault in the medulla, which may in turn be due to an error in one of the 12 Energetic Integrators, an emotional shock, or genetic and environmental influences.

Emotional tape loops can be linked very strongly to long-term errors in the body-field and lead to an information-blocking network of fields.

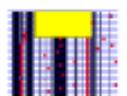
Prevailing mindsets and emotional states can create long-term errors in the HBF and lead to an information-blocking network of fields. The emotional remedies have been designed to correct the relevant section of the medulla and provide the correct information for a balanced psychological state in the top section of each compartment. They also help bring the tape loops to the conscious mind. It is interesting to note that higher in the energy compartments (at higher degrees of spin comparable to, but not the same as, higher frequency ranges), more heat is generated in the body. The higher in the compartment, the closer one comes to pathological states. The emotional tape loops are found at the top end of the energy spectrum. This adds a new understanding to why emotions seem to generate heat, and why emotional states are so often linked to serious disease.

Being in such close proximity in the compartments to pathology, the Brain Hologram and Liberator Infoceuticals are extremely powerful. Taking them can release years of pent-up emotion. Clients have reported vivid dreams, reliving childhood or later traumatic experiences as these emotional blocks are brought to the conscious mind for processing. Others have experienced anger for a few days, as past mistakes are processed and deep realizations about appropriate future action are gained.

Module 6 describes the ProVision Mind Screens in detail, including prescribing the Brain Hologram Infoceuticals, Liberator, ESR and ES-8 (Chill). In addition, Module 3 describes the link between the Els and specific emotions.

## 2.55 Layers

The body is in a continual dynamic state of change, reacting to internal and external influences. The HBF, as the master control mechanism, continually writes virtual messages to maintain the body's functions. These messages are recorded at a photon level as a series of layers that stack one on top of the other, in a continual process, occurring every moment of life.



The current layer is influenced by preceding layers will in a variety of complex ways. Trauma, shock or psychological fixations can create a block in the body-field that hides part of the message layer. The HBF may not be able to produce appropriate messages to correct this barrier.

The Energetic Star range of Infoceuticals is particularly effective at clearing these issues, allowing full information to be generated and communicated.

### **3. Introduction to Quantum Biology**

Quantum biology is a young science. It represents a fundamentally new way of viewing biological processes and the nature of life itself, and so our knowledge of this field is continually expanding.

This section presents an understanding of the fundamental principles of quantum biology. We start by revising the basic atomic and molecular bonding theory, a model familiar to us as part of our general knowledge and education. The idea of the electromagnetic wave spectrum, of which light is a part, will be discussed before moving on to a simple explanation of quantum and the Quantum Electrodynamics (QED) field. QED forms the core essence of quantum biology, biophysics, the formation of the Human Body-Field (HBF) and, in fact, all biological processes.

#### **3.1 History of the Atom**

Democritus of Abdera, *ca.* 460 BCE, is widely considered to be the first of the ancient Greeks to suggest an atomic theory (although it may have been his teacher Leucippus who initiated the idea). To Democritus, atoms were completely solid, homogeneous, indestructible objects that existed in the vacuum that made up the rest of the Universe. He considered that these atomic particles could combine with one another in different ways to produce the variety of all things animate and inanimate.

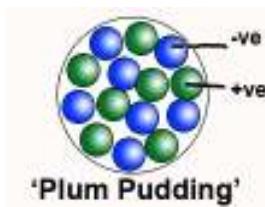


In modern times, the first significant step in atomic theory came with the discovery by Joseph John Thomson on 30 April 1897, of the electron. Thomson announced that cathode rays (used by televisions today to cast a picture on the screen) consisted of negatively charged particles, and were fundamental particles of matter. He calculated the ratio of the electron's charge to its mass. He was not the first person to suggest that these particles exist, nor did he coin the term 'electron', yet he is generally credited with the actual discovery of this particle. He was awarded the Nobel Prize in Physics in 1906.



J.J. Thomson  
1856-1940

J.J. Thomson is also remembered for his ‘plum-pudding’ model of the atom, which suggested a solid atom with positively and negatively charged particles, which were evenly distributed throughout the mass of the atom.



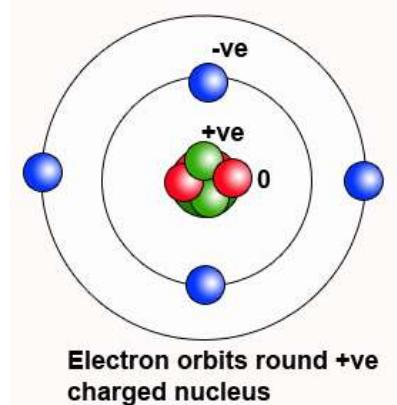
Ernest Rutherford, a former student of Thomson, is credited with discovering that most of the atom is made up of ‘empty space’. In 1909, he and his assistants conducted the ‘gold foil’ experiment, from which he concluded: ‘the greater part of the mass of the atom was concentrated in a minute nucleus.’ In this model, the positively charged nucleus was surrounded by a great deal of empty space through which the electrons moved.

In 1911, Robert Millikan conducted his ‘oil-drop’ experiment, which allowed him to measure the charge on an electron. Combining his results with those of Thomson, Millikan found the mass of the electron to be  $9.11 \times 10^{-28}$  g. He was awarded the Nobel Prize in Physics in 1923.

In 1913, Niels Bohr proposed an improvement to the Rutherford atomic model (for this reason, the planetary model of the atom is sometimes called the Rutherford–Bohr model). Bohr added the idea of fixed orbits, or energy levels for the electron travelling around the nucleus. This model presented the idea that electrons can become ‘excited’ and move to higher energy levels for brief periods of time.

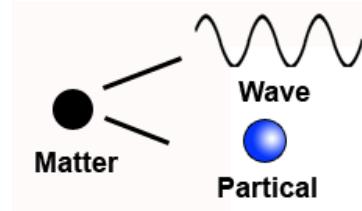


Niels Bohr  
1885–1962



Lord Rutherford predicted the existence of the neutron in 1920 and Walter Bothe obtained evidence of the neutron in 1930. However, it was James Chadwick who repeated Bothe's work and is the actual discoverer of the neutron, a chargeless particle existing in the atomic nucleus, along with the protons. He found these uncharged particles had essentially the same mass as the protons. This work earned him the Nobel Prize in Physics in 1935.

Although there is something attractive about the idea of an atom being much like a tiny solar system, the planetary model of the atom was found to be inadequate. Planck's quantum theory had illustrated the 'particle-like' properties of waves, and later, Louis de Broglie suggested that particles might have properties of waves. The result of these investigations is referred to as the wave-particle duality of nature. This duality, wherein particles act like waves and waves like particles, is not a unique instance, but applies to every wave and particle in the Universe. However, the more massive the particles, the less obvious their wave properties. Electrons, having very little mass, exhibit significant wave-like qualities.

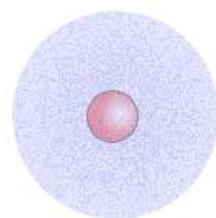


Werner Heisenberg determined that it is impossible to know both the exact position and the exact momentum of a particle at the same time. Applying this concept to the electron, this means that in order to get a fix on an electron's precise position at any time, we would alter its momentum. Similarly, any attempt to study the velocity of an electron will alter its position. This concept, called the Heisenberg Uncertainty Principle, effectively destroys the idea of electrons travelling around in neatly defined orbits. Any electron that is subjected to photons (observation) will have its momentum and position changed.

Experiments conducted in the 1920s, 1930s and 1940s continued to point out problems with the planetary model of the atom. These experiments led to the development of the charge-cloud model, also called the quantum-mechanical model. This does not attempt to describe the path of each electron in a simple fixed orbit. Scientists now describe the positions of electrons in terms of possibility or probability. Today, computers can calculate the points in space that an electron has the highest probability of occupying. These points can be connected to form a three-dimensional shape. Thus, now electrons are characterized in terms of the shapes that their probability fields define. The sum total of the various paths of all the electrons belonging to an atom is described as the electron cloud.



Werner Heisenberg



**Charged Cloud Model**

### **3.3 Atomic Terms**

Our current way of understanding the atom goes by various names: charge-cloud model, orbital model, wave-mechanical model, or quantum-mechanical model. According to this approach, the positively charged protons and the neutral neutrons are still located in the nucleus of the atom. The electrons, no longer thought of as locked into ‘fixed’ orbits, are collectively located in an area called the electron cloud. The boundaries of this cloud are set by the probability of finding each electron in given areas. These electrons, moving at extremely high speeds, effectively occupy the entire area of the cloud in the same way that moving fan blades seem to occupy the entire area through which they pass.

#### **Protons**

Protons are positively charged subatomic particles that are found, along with neutrons, in the nucleus of the atom. These two particles make up most of the mass of the atom. The mass of a single proton is about  $1.67265 \times 10^{-24}$  grams, or 1.0073 u (atomic mass units). Although the positive charge of the proton is equal to the negative charge on the electron, one proton has as much mass as around 1,840 electrons. The elements on the periodic table are arranged in order of increasing number of protons (see Atomic Number below.) This begins with the hydrogen atom, which has one proton and one helium atom, which contains two protons.

#### **Neutrons**

The neutron is a neutral particle that is found in the nucleus of most atoms. Although the neutron has no charge, it does contribute to the mass of the atom. Each neutron has a mass of about  $1.67495 \times 10^{-24}$  grams, or 1.0087 u. The most common type of hydrogen, called Protium, has no neutrons at all. Deuterium, another form of hydrogen, has one proton and one neutron in its nucleus. Tritium, the third form of hydrogen, has two neutrons and one proton in each nucleus.

#### **Atomic Number**

The number of protons in the nucleus of an atom is called its atomic number. The atomic number, which is given the symbol Z, is what determines the identity of an element. All atoms of the same element have the same number of protons and the same atomic number. Atoms of different elements, by definition, will have a different number of protons and therefore different atomic numbers. At this point, elements with the atomic numbers from 1 to 112 have been identified. One of the numbers found in each elemental box on the Periodic Table will be its atomic number. Unlike the mass number, the atomic number is always a whole number.

#### **Mass Number**

The vast majority of the mass of an atom is found in the nucleus. The mass of a proton or a neutron is approximately 1 u (atomic mass unit). It would take around 1,840 electrons to equal the mass of one proton. For this reason, the masses of the electrons are not considered when calculating the

mass number of an atom. The mass number, which is given the symbol A in elemental notation, consists of the total number of protons and neutrons in the nucleus of the atom.

## Isotopes

Although all atoms of the same element have the same number of protons, they can have a different number of neutrons. Atoms of the same element with different numbers of neutrons are called isotopes. The three forms of hydrogen discussed in the above section on neutrons represent different isotopes of hydrogen. Isotopes are often identified by mass number. For example, carbon-12 would be carbon with a mass number of 12, while carbon-14 has a mass number of 14. As in the case of carbon-14, some isotopes of certain elements are unstable, which means that they undergo radioactive decay.

## Atomic mass

The atomic masses shown on the periodic table below represent a weighted average based on the relative abundance of each isotope of a particular atom. Although some books and some teachers still refer to atomic mass as 'atomic weight', this is incorrect.

## Periodic Table of the Elements

|         | 1<br>IA | New<br>Original             | 2<br>IIA | 3<br>IIIIB | 4<br>IVB                   | 5<br>VB              | 6<br>VIB              | 7<br>VIIIB            | 8<br>VIIIB              | 9<br>VIIIB            | 10<br>IB                 | 11<br>IIB              | 12<br>IIB                | 13<br>IIIIB               | 14<br>IVA                 | 15<br>VA                  | 16<br>VIA                 | 17<br>VIIA               | 18<br>VIIIA    |                |
|---------|---------|-----------------------------|----------|------------|----------------------------|----------------------|-----------------------|-----------------------|-------------------------|-----------------------|--------------------------|------------------------|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|----------------|----------------|
|         | 1<br>H  | Hydrogen<br>1.00794         | 2<br>Be  | 3<br>Li    | 4<br>Beryllium<br>9.012182 | 5<br>Sc              | 6<br>Ti               | 7<br>V                | 8<br>Cr                 | 9<br>Mn               | 10<br>Fe                 | 11<br>Co               | 12<br>Ni                 | 13<br>Cu                  | 14<br>Zn                  | 15<br>Ga                  | 16<br>Ge                  | 17<br>As                 | 18<br>Se       | He<br>4.002602 |
| 1<br>Na | 2<br>Mg | 3<br>Magnesium<br>22.989770 | 4<br>Al  | 5<br>V     | 6<br>Cr                    | 7<br>Mn              | 8<br>Fe               | 9<br>Co               | 10<br>Ni                | 11<br>Cu              | 12<br>Zn                 | 13<br>Ga               | 14<br>Ge                 | 15<br>As                  | 16<br>Se                  | 17<br>Br                  | 18<br>Kr                  | He<br>4.002602           |                |                |
| 2<br>K  | 3<br>Ca | 4<br>Calcium<br>40.078      | 5<br>Sc  | 6<br>Ti    | 7<br>V                     | 8<br>Cr              | 9<br>Mn               | 10<br>Fe              | 11<br>Co                | 12<br>Ni              | 13<br>Cu                 | 14<br>Zn               | 15<br>Ga                 | 16<br>Ge                  | 17<br>As                  | 18<br>Se                  | He<br>4.002602            |                          |                |                |
| 3<br>Rb | 4<br>Sr | 5<br>Strontium<br>88.90585  | 6<br>Y   | 7<br>Zr    | 8<br>Nb                    | 9<br>Mo              | 10<br>Tc              | 11<br>Ru              | 12<br>Rh                | 13<br>Pd              | 14<br>Ag                 | 15<br>Cd               | 16<br>In                 | 17<br>Sn                  | 18<br>Sb                  | 19<br>Te                  | 20<br>Xe                  | He<br>4.002602           |                |                |
| 4<br>Cs | 5<br>Ba | 6<br>Barium<br>132.90545    | 7<br>Ra  | 8<br>Ra    | 9<br>Protactinium<br>(261) | 10<br>Thorium<br>232 | 11<br>Radium<br>(226) | 12<br>Dubnium<br>(10) | 13<br>Sovborium<br>(11) | 14<br>Bohrium<br>(12) | 15<br>Meitnerium<br>(13) | 16<br>Nobelium<br>(14) | 17<br>Ununhexium<br>(15) | 18<br>Ununquadium<br>(16) | 19<br>Ununquadium<br>(17) | 20<br>Ununhexium<br>(18)  | 21<br>Ununoctium<br>(19)  | 22<br>Ununoctium<br>(20) | He<br>4.002602 |                |
| 5<br>Fr | 6<br>Ra | 7<br>Fr                     | 8<br>Ra  | 9<br>Ra    | 10<br>Ra                   | 11<br>Ra             | 12<br>Ra              | 13<br>Ra              | 14<br>Ra                | 15<br>Ra              | 16<br>Ra                 | 17<br>Ra               | 18<br>Ra                 | 19<br>Ra                  | 20<br>Ra                  | 21<br>Ra                  | 22<br>Ra                  | He<br>4.002602           |                |                |
| 6<br>La | 7<br>Ce | 8<br>Pr                     | 9<br>Nd  | 10<br>Pm   | 11<br>Sm                   | 12<br>Eu             | 13<br>Gd              | 14<br>Tb              | 15<br>Dy                | 16<br>Ho              | 17<br>Er                 | 18<br>Tm               | 19<br>Yb                 | 20<br>Lu                  | 21<br>Yttrium<br>82       | 22<br>Lutetium<br>174.967 | 23<br>Lutetium<br>174.967 | He<br>4.002602           |                |                |
| 7<br>Ac | 8<br>Th | 9<br>Pa                     | 10<br>U  | 11<br>Np   | 12<br>Pu                   | 13<br>Am             | 14<br>Cm              | 15<br>Bk              | 16<br>Cf                | 17<br>Es              | 18<br>Fm                 | 19<br>Md               | 20<br>No                 | 21<br>Lr                  | 22<br>Lutetium<br>174.967 | 23<br>Lutetium<br>174.967 | He<br>4.002602            |                          |                |                |

Atomic masses in parentheses are those of the most stable or common isotope.

|          |                            |         |                                |                          |                          |                         |                          |                              |                        |                              |                        |                          |                        |                           |                          |                         |                          |                         |
|----------|----------------------------|---------|--------------------------------|--------------------------|--------------------------|-------------------------|--------------------------|------------------------------|------------------------|------------------------------|------------------------|--------------------------|------------------------|---------------------------|--------------------------|-------------------------|--------------------------|-------------------------|
| 57<br>La | 2<br>Lanthanum<br>138.9055 | 2<br>Ce | 2<br>Praseodymium<br>140.90765 | 2<br>Neodymium<br>144.24 | 2<br>Promethium<br>(145) | 2<br>Samarium<br>150.36 | 2<br>Europium<br>151.964 | 2<br>Gadolinium<br>158.92534 | 2<br>Terbium<br>162.50 | 2<br>Dysprosium<br>164.93032 | 2<br>Holmium<br>167.26 | 2<br>Erbium<br>168.93421 | 2<br>Thulium<br>173.04 | 2<br>Ytterbium<br>174.967 | 2<br>Lutetium<br>174.967 | 2<br>Yttrium<br>174.967 | 2<br>Lutetium<br>174.967 | 2<br>Yttrium<br>174.967 |
| 89<br>Ac | 9<br>Actinium<br>(227)     | 8<br>Th | 9<br>Protactinium<br>231.03588 | 8<br>Thorium<br>238.0289 | 9<br>(237)               | 8<br>(244)              | 8<br>(243)               | 2<br>(247)                   | 2<br>(251)             | 2<br>(252)                   | 2<br>(257)             | 2<br>(258)               | 2<br>(259)             | 2<br>(260)                | 2<br>(261)               | 2<br>(262)              | 2<br>(263)               |                         |
| 89<br>Ac | 9<br>Th                    | 8<br>Ra | 8<br>Ra                        | 8<br>Ra                  | 8<br>Ra                  | 8<br>Ra                 | 8<br>Ra                  | 8<br>Ra                      | 8<br>Ra                | 8<br>Ra                      | 8<br>Ra                | 8<br>Ra                  | 8<br>Ra                | 8<br>Ra                   | 8<br>Ra                  | 8<br>Ra                 | 8<br>Ra                  |                         |

### Key to periodic table

|               |         |    |                |
|---------------|---------|----|----------------|
| Atomic Number | 80      | 2  | Quantum Number |
| Element       | Hg      | 8  |                |
|               | Mercury | 18 |                |
| Mass Number   | 200.59  | 32 |                |
|               |         | 18 |                |
|               |         | 2  |                |

### Quantum Numbers

As you now know, scientists no longer think of electrons following the fixed orbits described by Bohr's planetary model of the atom. Instead, electrons are thought to effectively take up the entire space around the nucleus, out to a certain distance. Quantum numbers are used to describe the allowable values of certain physical quantities of an electron's behaviour.

The first quantum number, also called the principle quantum number, describes the radius of the electron's orbit. The principle quantum number is designated by the letter  $n$ , and its value corresponds to the numbered energy levels of the Bohr atom. So, an electron with an  $n$  value of 4 will be found in the fourth energy level.

The second quantum number, called the angular momentum quantum number, is given the letter  $l$ . This quantum number may have a value ranging from zero to  $n - 1$ , and thus is limited by the value of the principle quantum number. The second quantum number gives us the type of sublevel. A sublevel with  $l = 0$  is an **s** sublevel.  $l = 1$  designates a **p** sublevel. **d** sublevels have an  $l$  value of 2. **f** sublevels have an  $l$  value of 3.

The third quantum number, designated by the letter  $m$ , defines the spatial orientation of the orbital. The value of  $m$  will range from  $+l$  to  $-l$ , thus, an **s** orbital can have only a value of 0 for  $m$ , but a **p** sublevel can have a value of  $-1, 0$  or  $+1$ .

The fourth quantum number, which is given the letter  $s$ , describes the spin on the electron as either clockwise or counter-clockwise. The Pauli Exclusion Principle states that no two electrons in an atom can have the same set of four quantum numbers. Therefore, if two electrons occupy the same orbital, they must have opposite spins.

### Molecular Bonding (conventional view)

Here we consider the conventional view on molecular bonding, probably the method most learnt at college. Then we will go on to explain how quantum ideas apply to physical chemistry.

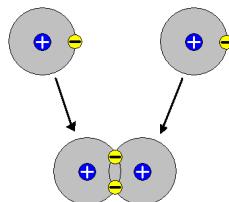
Chemical reactions are the foundation of all life processes. They occur when atoms either combine with, or break apart from, other atoms. The electrons moving around the atomic nucleus within energy level ‘orbits’ actively participate in chemical reactions. Each energy level has a maximum number of electrons that it can contain. The first level can hold 2 electrons, the second level can hold up to 8 electrons, and the third level has a maximum of 18. An atom always attempts to fill the outermost energy level with the maximum number of electrons it can hold. To do this, the atom may give up, take on, or share electrons with another atom. The atoms with incompletely filled outer energy levels, such as sodium and chlorine, tend to combine with other atoms in a chemical reaction.

Atoms that have already filled the levels generally do not participate in chemical reactions, since they do not need to gain or lose electrons. These are known as inert elements. When two or more atoms combine in a chemical reaction, the resulting combination is called a molecule. A molecule may contain two atoms of the same type, as in the typical hydrogen molecule —H<sub>2</sub>. Molecules may also be formed by reaction to different kinds of atoms, as in the hydrochloric acid molecule HCl, where a hydrogen atom (H) has combined with a chlorine atom (Cl). These form a compound, defined as a substance that can be broken down into two or more other substances by chemical means.

The atoms in the molecule are held together by attraction forces called chemical bonds. When a chemical bond is broken, energy is released. Conversely, when chemical bonds are formed, energy is required. The two major bonding processes, covalent and ionic, are described below.

### **Covalent Bonding**

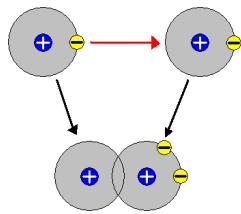
Covalent bonding occurs when atoms can attain a more stable arrangement of electrons in their outermost shell by interacting with one another. The two atoms effectively share their electrons in their outer shell. Covalent bonds form with a partial transfer (unequal sharing of electrons), resulting in a polar covalent bond.



### **Ionic Bonding**

An ionic bond is formed when electrons are transferred from one atom to the other. One atom will have a negative charge and the other a positive charge. This charge difference will draw the two atoms together to form an ionic bond. Ionic bonds are not as strong as covalent bonds, since they

bond with any atom that has an opposite charge. The transfer of the electrons is what allows electric cells or batteries to function.



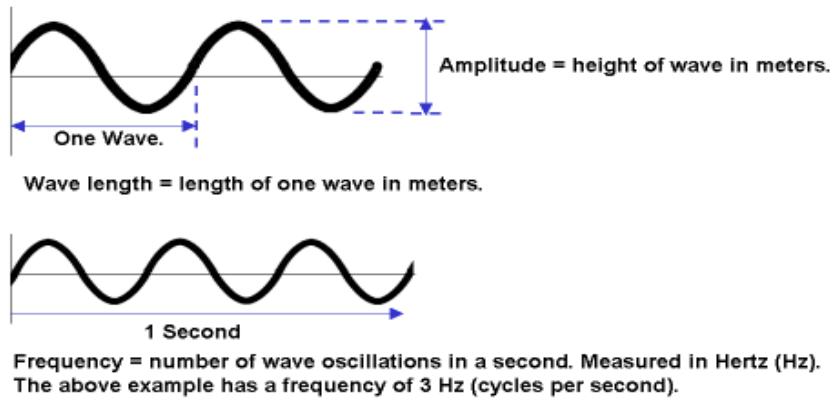
## Chemical Compounds

Most chemicals in the body exist in the form of compounds, substances that can be chemically broken down to form other substances. Compounds are divided into two classes: inorganic and organic. Inorganic compounds lack carbon and form small ionic-bonded molecules that are vital to bodily functions. This includes water, salts and acids. Organic compounds contain carbon and hydrogen. Carbon has four electrons in its outer shell and hence can easily combine with many other atoms to form straight or branch chains and rings. These carbon-based chains form the background for many of the substances found in living cells. Organic compounds are held together largely by covalent bonds. Carbohydrates, lipids, proteins and nucleic acid are all typical organic compounds.

The above explanation is the classically accepted view of chemical bonding. Biophysics is concerned with the world of quantum chemistry, which is fundamentally different than this classical view. To understand quantum, we first need to be aware of the phenomena of waves and the electromagnetic spectrum.

## 3.4 The Electromagnetic Spectrum

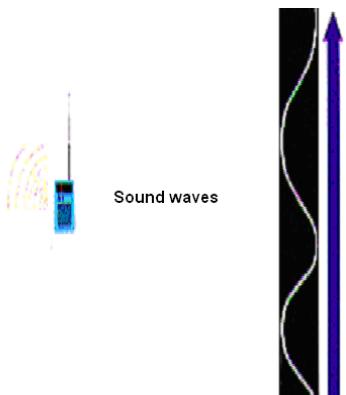
A wave is an oscillating disturbance that moves through a medium or through space. The familiar picture of ocean waves or ripples on a pond is how physicists image the waves that occur in quantum physics. Waves can have many shapes, and the examples we are using here are known as sine waves, since they are derived from the trigonometric sine function. Other shapes include square waves, triangular waves, modulated waves, etc.



The characteristics of a sine wave are defined by its height (amplitude), length of a single wave (wave length) and the number of times it oscillates per second (frequency). These waves surround us and form an integral part of our everyday lives, appearing in a multitude of forms including everyday sound and light, radio and television frequencies, microwave ovens, cell phones, radar, X-rays, laser beams, etc.

From a bioenergetic standpoint, the Energetic Integrators display wave characteristics. Integrator 1 exists at the very low-frequency of 0.1 Hz. Integrator 2 is slightly higher at 1 Hz, incrementing through to Integrator 12, which is in the infrared light range of 1,000,000,000,000 Hz. The chart below covers the full electromagnetic spectrum.

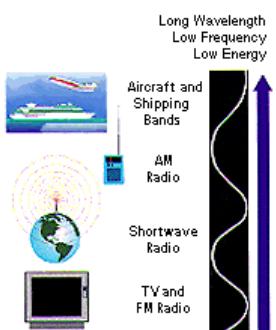
### The Electromagnetic Spectrum (EM)



Sound waves exist at the lowest frequency of the EM spectrum. Ultra-low sub-sonic waves have a frequency of only several Hertz. These are in the phonon range of energy. The human audio range starts at about 20 Hz and extends to 17,000 Hz. Ultrasound extends beyond this upper limit.

Alternating current (AC) electricity operates between 50 and 60 Hz.

Energetic Integrators 1 through 4 operate at these frequencies, at the phonon level of the spectrum.



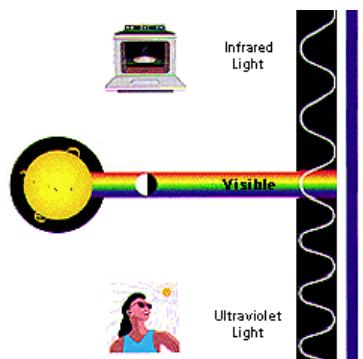
Radio waves are used to transmit radio and TV signals. These are also emitted by objects, such as stars and gases. As the name suggests, they form the electron's range of the energy spectrum.

Commercial radio extends from long wave, starting at 150 thousand Hz, to FM at up to 110 million Hz. TV transmitters operate at a frequency just below the FM radio band.

Energetic Integrators 5 through 9 operate within these same frequencies.

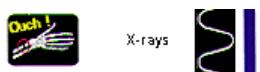


Microwaves are used for satellite and cell phone communication, as well as for heating food. Integrator 10 operates at this frequency, at around 10 thousand million Hz.

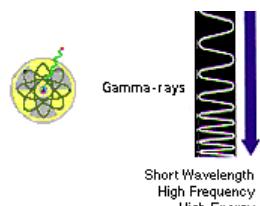


This is the light or photonic part of the spectrum which starts with infrared, moves through visible light, and ends with ultraviolet. Infrared is often associated with 'heat' that is generated by the wave breakdown of the photon. Visible light radiation is emitted by everything from fireflies to light bulbs and from stars to fast-moving particles hitting other particles. Ultraviolet is emitted by the sun and causes our skin to burn.

Energetic Integrators 11 and 12 operate within this range, at a frequency of up to 1 million, million Hz.



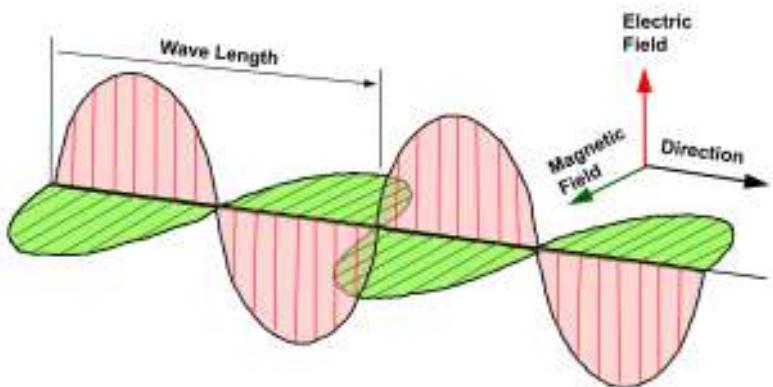
X-rays are part of the familiar diagnostic instruments used in medicine and dentistry. Hot gases in the Universe also emit X-rays.



Gamma rays: radioactive materials (some natural and others made by man in, for example, nuclear power plants) can emit gamma rays. Large particle accelerators used in the scientific investigation of matter, can sometimes generate gamma-rays. However, the greatest gamma ray generator of all is the Universe itself, which creates gamma radiation in a variety of ways.

The electromagnetic field is often described as a dual wave. The diagram below graphically depicts two components: one electrical and one magnetic. This is the precise reason why it is called an electromagnetic wave. These waves are at 90° to each other and mutually dependent – one cannot exist without the other. They also move together. This diagram can also be used to understand the real and virtual concepts of quantum. Both real and virtual are mutually dependent and exist

simultaneously, but in different planes. To experience the real, you must be in the real plane. To experience the virtual, you must be in the virtual plane. Making changes in one affects the other. An example could be that of a train ticket, where the electric field can be considered as the physical material of which the ticket is composed, while the magnetic field is the information printed on the ticket.



### 3.5 Quantum

Science now views the world in a radically different way than even a few years ago when Newtonian Mechanics reigned supreme. The Newtonian view of the world is still valid in the everyday sense. It was this model that was used to successfully explain the motions of the planets, moons and comets down to the smallest detail, and which NASA used when planning the moon landings. Most of our everyday experiences with physical objects can be described by Newtonian laws, i.e. the ability of a chair to support our weight, the force needed to rotate a door handle, or the traction that car tires produce on the road.

However, when Michel Faraday succeeded in producing an electric current in a coil of wire by moving a magnet near it, the world of electrodynamics, the science that explains electric and magnetic forces, was born. In electrodynamics, Newtonian physical forces are replaced by magnetic force fields, and physical movement is replaced by electrical flow. The principle that moving electricity creates magnetism, and that moving magnetism creates electricity, is the basis of the electric motor and generator. Electrodynamics extends into the electromagnetic spectrum as described above, where even light is found to be a rapidly alternating form of electromagnetic field, travelling through space in the form of waves. Thus, by the beginning of the twentieth century, science had two successful theories: Newtonian Mechanics and Electrodynamics.

In 1905, an additional theory was introduced by Albert Einstein: the special theory of relativity, which subsequently developed into quantum theory. According to the relativity theory, space is not three-dimensional (up, down, left, right, forward and backward) and time is not a separate entity. Both are intimately connected and form a four-dimensional continuum called 'space-time'.

One of the stunning realizations of this new theory is that mass (matter) is nothing but a form of energy. This is most clearly shown in Einstein's equation,  $E = mc^2$ . E is energy, m is mass (a characteristic of all matter that equates to weight in the presence of gravity) and c is the speed of light. The little '2' following the c means squared (the speed of light times the speed of light). Given that the speed of light can be taken as a constant, we are left with the idea that energy equals mass times a very large number. So if energy changes, the mass will change and if mass changes, energy will change. They are mutually dependent, and mutually existent.

In 1915, Einstein proposed his general (as opposed to special) theory of relativity, suggesting that the force of gravity has the effect of curving space and time. Where there is a massive object, such as a star, with a strong gravitational pull, the space around it becomes curved. Furthermore, the degree of curvature depends on the mass of the object. Because time and space are intimately related, this curving of space also applies to time.

The same relativity principles can also be applied at the micro end of the spectrum with regard to atoms. To give you some idea of the scale involved with atoms, imagine an apple enlarged to the size of the Earth. In this scenario, the atoms that make up the apple would only be the size of cherries. If we now consider the centre of one of these atoms, in order to see its nucleus we would have to enlarge the atom even further to the size of a football field. The nucleus would then be the size of a grain of sugar in the middle of the field.

The study of atoms has revealed that electrons travel at an enormous velocity – around 1,000 km per second (600 miles per second). Protons and neutrons spin within the nucleus at 65,000 km per second (40,000 miles per second). At these velocities and sizes, the laws governing their behaviour are described by relativity and more completely, by quantum physics.

The particles that make up the atoms (neutrons, protons and electrons) are known as subatomic particles. The term 'subatomic particles' also refers to a range of other minuscule particles, such as photons, neutrinos, muons, etc., which exist in the world of quantum. The study of subatomic particles is undertaken by the modern science of quantum physics. A significant discovery in this field is that matter has a dual aspect. Depending on how we look at matter, it can appear sometimes as particles and sometimes as waves. This strange dual nature is also exhibited by light, which can take the form of electromagnetic waves that spread out over a large volume of space, or of a particle, an entity contained within a very small volume. Quantum theory is paradoxical in nature.

Max Planck discovered that heat radiation, such as from an electric fire, is not emitted continuously, but appears in the form of 'energy packets' which Einstein named 'quanta'. Einstein suggested that light and all other forms of electromagnetic radiation could be both an electromagnetic wave and a particle or quanta. The light quanta from which quantum theory gets its name is now called a photon. Photons have special properties, in that they are massless, chargeless and always travel at the speed of light. They also form a fundamental part of QED theory, as discussed later.

Quantum physics has unearthed the contradictory and paradoxical nature of the Universe. At the subatomic level, matter does not exist with certainty or at a defined place, but rather shows merely a tendency to exist. Atomic events do not occur with certainty and at set times, or in defined ways. Rather, they show tendencies to occur randomly. In quantum physics, tendencies are expressed in terms of probabilities. Particles are actually probability waves, an abstract mathematical quantity.

We can never predict an atomic event with certainty. We can only say how likely it is to happen. At a subatomic level, the solid material objects of everyday life dissolve into wavelike patterns of probabilities, and these patterns are more like probabilities of interconnectedness. Subatomic particles cannot be considered in isolation but can only be understood as interconnections with other particles. As matter is explored in the tiny world of quantum physics, we find there is no isolated ‘building block’ but rather a complicated web of relations between the various parts of the whole.

One of the paradoxical discoveries about subatomic particles is that by observing them and how they interact through experiments, such as is achieved with particle accelerators and bubble chambers, the observer influences the event. It is as if the observing scientist’s consciousness and the context of the experiment affects the experiment outcome. It seems that intent has power over these microscopic events.

### **3.51 Quantum Chemistry**

The description of how atoms combine to form molecules, and how molecules interact with one another using the rules of quantum physics, is called quantum chemistry. This new form of chemistry recognizes that electrons no longer fall into the classical description of particles located at defined points in space. Even a single electron can ‘surround’ the nucleus of an atom, occupying a volume as large as the whole atom. The idea of shells has been replaced by the idea of clouds, and each electron’s motion extends down to actually touch the nucleus. All the electrons in an atom come under the direct influence of the nucleus. Some electrons are more strongly influenced by it than others, and some electrons are more energized than others.

It is the atomic electron cloud that another atom ‘sees’ and interacts with. This interaction of clouds is described by quantum chemistry and governs the current understanding of the formation of molecules and chemical reactions. The process of atomic bonding is now regarded as a ‘resonance’ process. A particularly important example of this is found in the benzene ring, a structure made of six carbon atoms joined in a loop. This structure is the heart of many complex organic molecules, including some amino acids, sugars and proteins. Variations on the ring shape are found in DNA and RNA, which carry the genetic code for all living things.

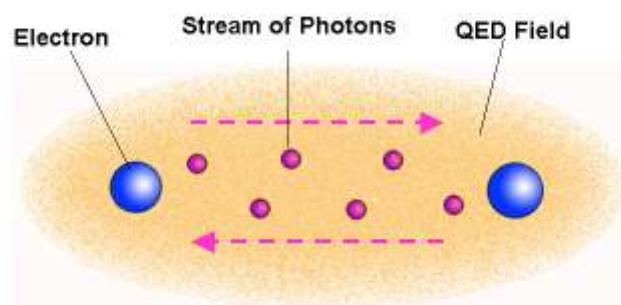
### **3.52 Quantum Electrodynamics (QED)**

QED is concerned with the way charged particles interact with one another in the presence of a magnetic fields through the exchange of photons. It is considered the jewel in the crown of quantum

physics. QED describes all interactions involving photons (light) and charged particles, particularly those of electrons. Atom-molecule interaction depends on the arrangement of electrons in clouds around the nuclei and the electrical forces acting between atoms. This means that QED can be used to fully explain the whole of chemistry. In fact, QED can be used to explain all of matter and the interconnectedness of all things.

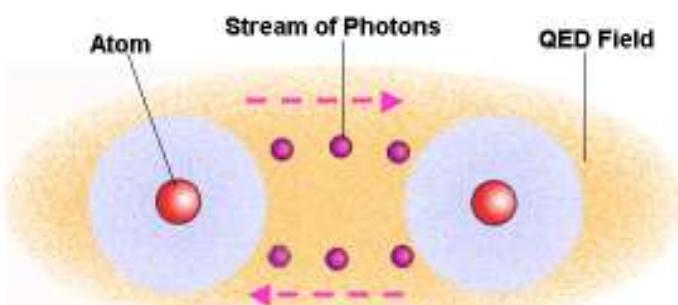
QED was first postulated in the 1930s, when it was suggested that interactions between charged particles such as electrons could be mediated or regulated by photons. The theory were refined and developed by many eminent physicists, including Willis Lamb, Robert Rutherford, Paul Dirac and Richard Feynman.

QED theory involves highly complex mathematical concepts that are far beyond the scope of this course. The essentials that one needs to be aware of are that QED fields exist between charged particles such as electrons. This field allows electrons to interact or communicate with each other via a stream of photons.



A QED field facilitates the communication between electrons through photon exchange.

The electrons and photons should be thought of as a wave function, rather than as discrete particles. The electron's information is stored within its structure, and photons facilitate the movement of this information between electrons.



Communication between atomic electron clouds is through photon exchange within in a QED field.

A chemical reaction involves two or more atoms forming or breaking bonds. For this to happen, the atoms need to communicate with each other to determine whether they should stay bonded, break a bond, form a bond, repulse, remain inert or react to gravitational forces. It is the atom's electron cloud that facilitates this communication. The charged clouds set up a QED field, and through this, photon exchange can happen and the 'interaction information' can begin to flow.

### 3.6 The Discoveries of Peter Fraser

Between 1983 and 1997, Peter Fraser combined the ideas of his forerunners in the field. Gradually abandoning the idea of an electrical field in biology, he substituted a quantum field. He knew this was a special case of the QED field, one that appears under a certain voltage of electrostatic charge.

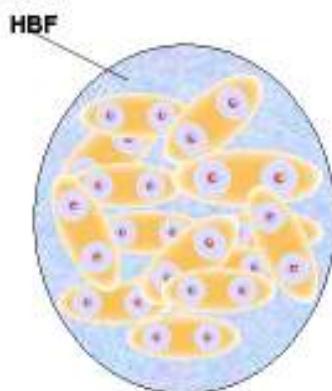
In 1998, he constructed a machine that demonstrated that free energy would appear spontaneously in an electrically enclosed space. The natural phenomena of cavities, tuned to specific frequencies, occurs in the human body as well. This energy can be verified by being displayed on a cathode ray screen. Fraser theorized that this energy was the motive power source for a quantized, biological energy field.

By 2001, he had measured sets of angles, summarized as numerical entities set in space in multi-dimensional contexts. These are the basis of information, which appears to be carried in all living things by phonons, electrons and photons. Two years later, he found that electrons, phonons and photons all have characteristic behaviours during information transfer. Since this is dependent on their frequency, he was able to determine a set of physical constants describing this behaviour.

During 2004, Fraser described a system of biophysics-based medicine, including more than 60 preparations. These 'Infoceuticals' were created through information transfer in quantized fields. Infoceuticals (which are simply data imprinted in a quantized field) are designed to correct information transfer in the human body. He proposed a dual system of medicine – part biochemical, part quantized field.

Continuing to experiment and build on previous insights, in 2005 he demonstrated that the function of the brain and nervous system is a set of patterns-in-space matching systems. The entire process of human thought, learning and memory can be attributed to this process.

The bioenergetic study of the QED led to the discovery that all the QED fields of the body combine together to form an overall field known as the Human Body-Field (HBF). Since individual QED fields govern specific relationships between atoms, the combination of all these fields in the HBF will govern all the relationships of all the atoms of the body. These relationships are modulated or controlled by photons. Thus, photons and the information they carry form the key to communication within chemistry and biology. According to Prof Stephen Hawking, information contained by a photon is never lost.



**The Human Body Field is a collection of QED fields. There is a QED field for every process in the body.**

By understanding the fundamental ideas of what makes biochemistry function, we can also discover what causes the breakdown in this functioning. Biophysics describes the effects of toxins and electromagnetic fields on the body, something that was not previously possible. The understanding of these causes and effects allows us to actually treat the cause and not the resultant symptoms. NES infoceuticals are able to interject information into the QED field and invoke change on the deepest, subatomic level.

### 3.7 Summary of Quantum Biology

Since the discovery of the electron 110 years ago, our knowledge of the minute world of atoms and subatomic particles has expanded beyond the wildest imaginations of the founders of atomic science. Quantum physics has developed into a comprehensive explanation of the behaviour of the smallest particles. Astrophysics, the study of the largest objects – stars, galaxies and the cosmos – has likewise made significant steps forward in explaining the existence of the Universe. What is now apparent is that the laws that govern the micro world of atoms are equally valid for the macro world of the Universe. Events in the micro world are reflected in the macro world and vice versa. The physicist's conclusion is that everything in the Universe is interconnected.

Now physicists are beginning to look at the world of biology, moving from examining inanimate objects to that of life forms, for these, too, are made of atoms and live within the confines of the cosmos. This branch of study has been termed Quantum Biology.

Humans, like all matter, are constructed from atoms grouped together in specific ways. The laws that govern these groupings are explained through quantum chemistry. The classical model of atoms, with a central 'sun' and electrons circling like miniature planets, and set rules of how they interact and bond to form molecules, has been replaced. A new model has taken precedence, where atomic nuclei are surrounded by electron clouds that behave in a paradoxical, uncertain way. Atoms

and electrons interact with each other, communicating their needs and responding to their situation. This process is described through Quantum Electrodynamics (QED) and centres on the idea of photons, which are massless, chargeless packets of light that carry information from one electron structure to another.

This information is used by atoms to determine the formation and breaking of molecular bonds, and in turn by cells to form proteins, and by organs to perform functions. In fact, all activity in the entire body is governed by this atomic information transfer process. This interaction has a real component, which involves chemical, electrical and physical processes, as well as a virtual component.

Within the human body there are literally billions of atoms, all of which are in communication with other atoms, deciding how they should interact in order for the human body to function. Biophysics has unravelled the format of these communications and is able to decipher their meaning. The HBF is a summation of all the QED fields within a human and represents an intelligent, self-organizing structure, responsible for regulating all body processes down to the atomic level.

NES infoceuticals contains virtual information that can be introduced into the HBF in order to correct distortions in the photon-level information-transfer process.

If you would like to learn more about quantum, here are some recommended books.

### **Further Reading**

*The Tao of Physics* – Fritjof Capra – ISBN 0-00-654489-4

An excellent and readable book that draws parallels between quantum physics and eastern mysticism. Introduces physics ideas and mystic concepts in plain English. Thoroughly recommended.

*Q is for Quantum – Particle physics from A to Z* – John Gribbin – ISBN 1-84212-604-0

A substantial A to Z reference text that covers all aspects of quantum physics. If you need to look something up, this book makes it easy to find. Contains detailed explanations, without the mathematics.

*The Field: the quest for the secret forces of the universe* – Lynne McTaggart, ISBN 978-0-00-714510-2

*Quantum Mind: The edge between physics and psychology* – Arnold Mindell, ISBN

## **4. Biophysics of Body Cavities**

Body cavities form an essential part of the bioenergetic model. Cavities include both hollow structures, such as the sinuses and blood vessels, and relatively solid structures such as the lungs and bones. By definition, a cavity has a hard outer lining and/or epithelial sheath that envelops a softer/ hollow inner aspect. The body contains a considerable number of cavities, including a number of major organs. There are also many cavity-like structures containing other cavities, nested one inside the other.

The Chinese were fascinated by these repeating structures, and investigated them thoroughly. They discovered an energy channel that communicated with the body's major cavities, which they called The Three Burning Spaces or Three Heaters. This term has little meaning until you understand that on the virtual level energy seems to arise from nowhere, and collect within body spaces. This then is intimately associated with the body's ability to generate heat.

### **4.1 Functions of the Cavities**

In biophysics terms, cavities have four primary functions:

#### **1. Collecting energy from space**

Energy has both a real form, such as the metabolism of carbohydrates, and a virtual aspect, such as Source energy and the energy of dynamic information. To function efficiently, the body needs both real and virtual Source energy. The cavities are the primary means of gathering and storing virtual energy from space.

#### **2. Storing virtual energy**

Cavities collect and store virtual energy as *Source* or *Yuan Qi* (the Chinese term). They act like rechargeable batteries, existing in a fully-charged state or in a reduced state of charge. In health they are well charged and in sickness they carry a diminished charge.

#### **3. Activation of information exchange**

Source energy is the precursor to all activity in the body - without it nothing can happen. Source energy sets up a 'static field', a supportive environment within a cavity that facilitates dynamic information exchange. This is the very process by which all body activities are regulated. If the Source energy within a cavity becomes depleted, its static field is reduced and its ability to communicate is impeded.

#### 4. Heat control of the body

Being warm-blooded creatures, our bodies need to maintain a very precise temperature. Even a change of one or two degrees has a significant effect. To regulate temperature, two things are required – a source of heat, and a means of venting excess heat. Biochemically, warmth is derived from carbohydrate oxidation. However, another important heat source is derived from the virtual plane. The cavities of the body have the ability to convert virtual energy into thermal energy. Venting of excess heat in the real world is performed through perspiration. In the virtual world, the cavities have the ability to radiate excess heat to the environment as virtual information.

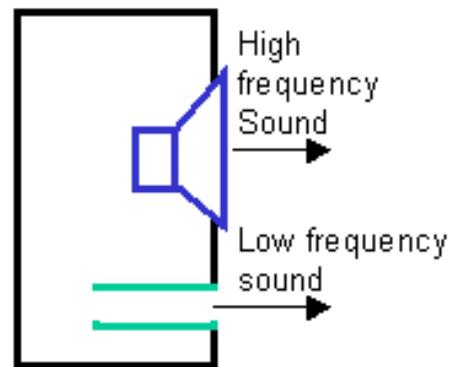
## 4.2 Tuning of the Body Cavities

A high-quality audio speaker is a good analogy for the working of cavities. The speaker box is made of a rigid material that encloses a space. A speaker drive unit is attached to one of the flat walls. When an electrical signal is supplied from the Hi-Fi, the speaker driver cone reacts by moving inwards and outwards. This generates sound waves, which we hear as music.

The size and shape of the enclosure influence the quality and depth of the sound being generated. A large box is capable of producing deeper, lower sounds than a small box, which sounds tinny by comparison. Think of a violin, guitar and cello. They have the same basic design, consisting of taut vibrating strings connected to a sound box. The small sound box of a violin produces high-frequency sounds, compared to the deeper tones of the cello or guitar.

An important feature of any quality sound box, whether a musical instrument or speaker, is the inclusion of a port. The port aids the development of low frequency sounds. Thus, the size and shape of the enclosure and included port ‘tunes’ the sound box to a particular harmonic response. High-quality speakers and musical instruments sound better than less expensive ones because they have been tuned more harmoniously.

This concept of tuning is also an important aspect of body cavities. Body cavities vary considerably in size, shape, enclosure material, filling material and port sizes. All these factors give individual cavities their specific characteristics and tuned harmonic response. This is made more complex by the existence of cavities within cavities. The chest cavity contains the pericardium, in which the heart resides. In turn the heart has four primary chambers/cavities, two ventricles and two atriums. Thus, there are three levels of enclosure. This stacking of cavities amplifies the inner cavities’ functions and power.



## 4.3 The Three Primary Cavities

### 4.31 Cranial cavity

The cranial cavity is a more or less solid arrangement, almost entirely covered with a thick layer of bone, with numerous cavities within the cranial space. Apart from the meninges, there are the large venous sinuses, the two lateral ventricles, the third and fourth ventricles, and finally the osseous sinuses within the bones of the cranium itself.

However, a cavity is ineffective without a port. Just as in the science of acoustics, in biophysics terms, a hole serves as a tuning apparatus. In the cranium there is an exit hole at the base of the skull, as well as entry points for energy behind the nasal cavity, eye sockets (orbital ridge) and auditory canal. The cranial cavity further extends its influence into the bony cavity of the spinal column, with its inner meningeal sheaths housing the spinal cord, which itself contains an inner channel, a cavity containing the spinal fluid.

Lung Driver affects the nasal cavity for drawing energy from the outside environment, while Nerve Driver drives the nervous system sounds from inside the cavity. These two, along with Source Driver, strongly influence the cranial cavity and so are important in nervous disorders.

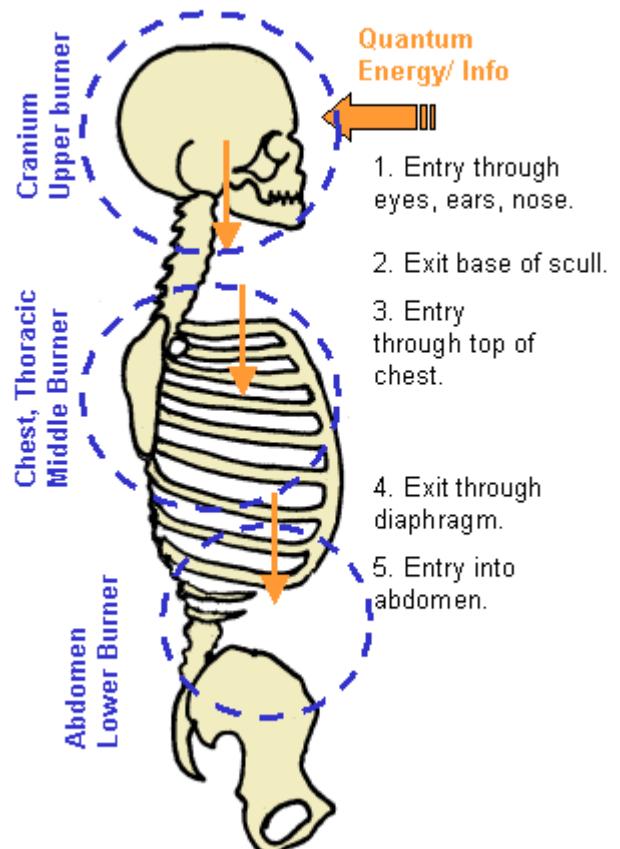
EI-6 regulates the arachnoids membrane of the cranium (effectively the epithelial lining) and so has a huge influence on the cranial cavity.

### 4.32 Chest cavity

The next major body space is the chest cavity, which develops subsequent to the neural tube and its enclosing cavity. Here, too, we have organs that contain cavities within the major cavity, such as the heart and lungs and their pleural and pericardial sacs. Thus there is a triple cavity present. Perhaps this is the idea of the 'Triple Burner' expressed so often in TCM texts.

Source Driver, Lung Driver and EI-2 affect this cavity if it is under-powered. This condition will always be found in the case of asthma. But in TCM there is the concept of an over-energized thoracic cavity that can also cause distress. People who are always chilly and do not make enough heat may need their energetic 'heater' corrected.

The thoracic cavity is surrounded by the ribs, cartilages, intercostal muscles and the spine itself. The opening of



the cavity is at the top (the trachea), and at the bottom, where the muscular diaphragm links it to the next cavity.

### 4.33 Abdominal cavity

The abdominal cavity has a ‘soft’ shell, formed by the diaphragm, the back muscles, the spine and the multiple sheaths of abdominal muscles. At the embryonic stage, the intra-embryonic coelom is the basis for the development of all body cavities and begins to develop near the end of week three. The abdominal organs develop from larger sacs, the greater and lesser omentum. These become the energetic structures of the abdomen, comprising the peritoneum and the stomach.

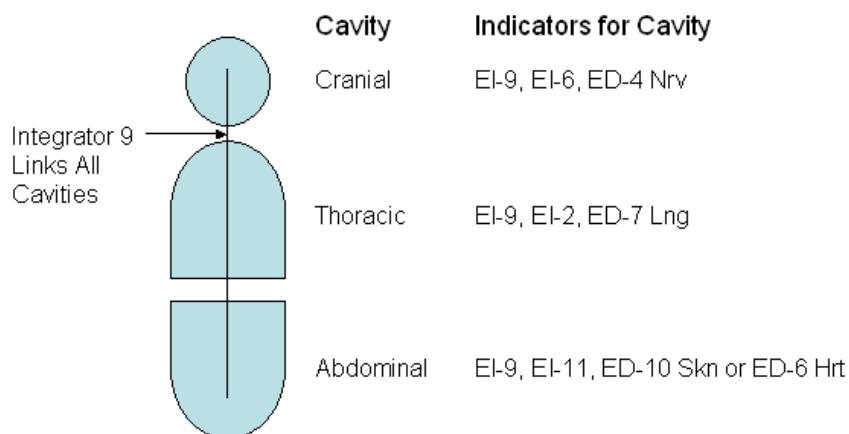
The Heart Driver is intimately related to the Stomach Driver and both can be used to affect this cavity along with EI-11. Additionally, the great energizer of all cavities – the Source Driver – is always useful.

All three of these major body cavities are linked by one energy channel and this is affected by using EI-9 (Triple Warmer). Therefore, you will see that in terms of embryology this is related to the sacs that are the origins of the body cavities.

The above Driver and Integrator information can be used in cases where there is very low energy and healing is difficult. The basic principles of human energetic structure are our guide to understanding how to restart the body’s energy system.

### 4.4 Cavity Issues Indicators

By carefully monitoring the results from the ProVision scan, issues within the three principle cavities can be detected.



If the scan shows EI-9, EI-6 and Nerve Driver to be out of balance, then this is a good indicator that the cranial cavity has issues. Likewise, the indicators for the thoracic and abdominal cavities are

shown in the diagram above. To address cavity issues, the ED-1 (Source Driver) is always used along with another driver, EI-9 and another integrator. See table below:

| Cavity   | Infoceuticals to address issues              |
|----------|--|
| Cranial  | ED-1 Srce, ED-4 Nrv, EI-9, EI-6              |
| Thoracic | ED-1 Srce, ED-7 Lng, EI-9, EI-2              |
| Abdomen  | ED-1 Srce, ED-10 Skn or ED-6 Hrt, EI-9, EI11 |

The infoceuticals should be used on the same day but not mixed. It is a good policy to take the Drivers in the morning (for detoxing) and the Integrators in the evening. This protocol would not normally be adopted until at least the third visit.

An alternative approach is to use ES-4 TCE. This Star has been designed to re-establish the integrity of the primary cavities and their Source energy accumulation and storage functions. This may aid in alleviating chronic tiredness and energy depletion. It has also been designed to have a detoxification affect on the primary cavities.

The correct function of the endocrine glands, according to biophysics, is dependant on the associated cavity storing and accumulating source energy.

- The cranial cavity houses the pituitary and thalamus glands.
- The thoracic cavity houses the thymus and heart.
- The abdominal cavity houses the suprarenal glands, digestive glands and gonads.
- The thyroid and parathyroid exist between the cranium and thoracic cavity.

When the cavities function correctly, these glands are likely to benefit.

## 4.5 Organ Cavities

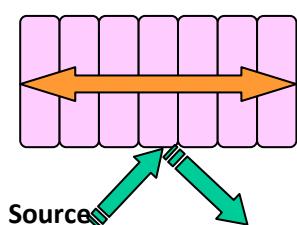
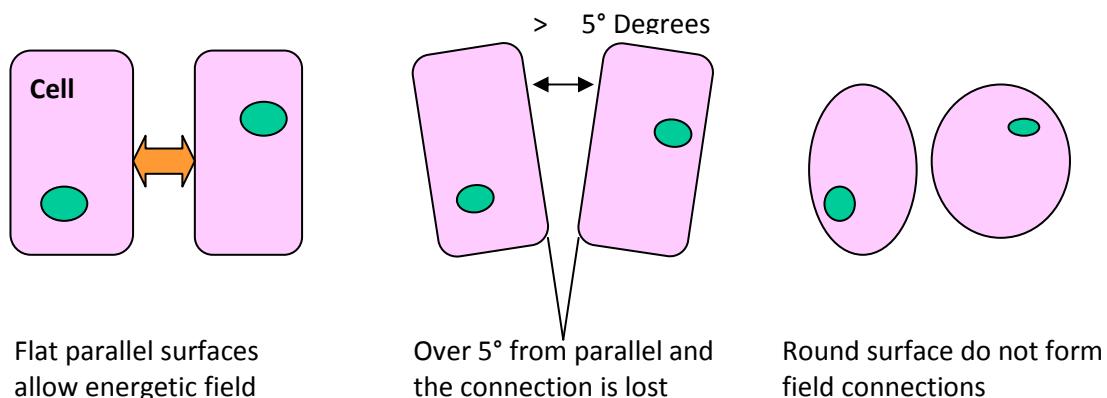
All body organs form cavities, since each has an entry and exit port and their physical boundaries are defined by simple epithelium, such as squamous, cuboid or columnar cells. In the stomach, the esophagus and duodenum act as the entry and exit ports and the lining consists of a single layer of simple columnar epithelium cells, which envelops the stomach cavity space. Externally, the muscular coats of the stomach are also covered by a mesothelial sheath.

In bioenergetic terms, the purpose of a cavity is to attract and store virtual source energy. To store this substance, a containment boundary is required. Since we are talking about virtual energy, a physical boundary will not do the job, so an energetic boundary is required. Simple squamous, cuboid or columnar epithelium cells have the special properties of forming both a physical organ boundary and a virtual energy boundary.

Bioenergetic researchers have discovered that cells can form energetic connections with neighbouring cells if they present flat parallel surfaces to each other within a five-degree tolerance. If there is a misalignment of over five degrees, the connection is lost. Most simple epithelium cell types are square or rectangular in shape and sit next to each other in a thin single-cell layer. The flat surfaces they present to each other allows an energetic field connection to be formed from one cell to the next. Epithelial cells envelop entire organs and thus form an embracing energetic field that has the ability to contain virtual source energy.

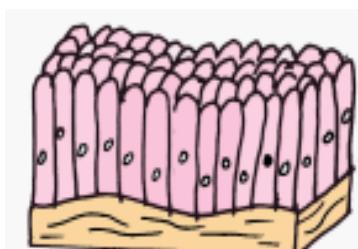
Where organs have sharp corners (for example, the tip of the pancreas, liver, etc.), the epithelial cells butt up to each other with an angle greater than five degrees. This results in a containment field breakdown. These 'sharp' points act as inter-organ communication portals.

Where there is physical damage to an organ lining, due to mechanical injury or to bacterial, fungal or other toxic factors, the epithelium lining is disturbed. The physiological trauma is compounded by a virtual source energy leakage, with a subsequent reduction of the cavity's energetic properties.



A series of flat bounding cells will set up an energetic wall that will repel virtual source energy

52



Squamous, cuboid or columnar epithelium cells envelop all organs and present flat surfaces to neighbouring cells. They thus set up a container of virtual/ source

## **Feeling the energy field**

With practice it is possible to feel the energy field radiating from the cellular structure of the hands. To try this, place your hands in front of your body just below chest level, with the palms parallel and facing each other, about 10 inches (20 cm) apart. Relax your body and allow the breath to become deep and calm. Now very slowly, slightly change the angle of the palms so that they are no longer parallel. Then slowly bring them back to face each other. Continue to oscillate back and forth and you will soon begin to feel something. There may be warmth, tingling or an attracting or repelling force. As you oscillate the hands, you will feel the sensation come and go. Once you have this sensation, you can start moving the hands slightly closer and then further apart and sense any changes. If at first you do not notice anything, a little more practice will soon show results.



## **4.6 Sounds of the Body**

The three burning spaces of the body – the cranial, thoracic and abdominal cavities – all attract energy from space, the so-called Source energy known in TCM as Yuan Qi.

When we look at the physics of this phenomenon in the light of modern ideas about the Quantum Electro Dynamics (QED) field, the idea makes more sense. But the concept of the Yuan may or may not correspond with the modern idea of Zero Point Energy. There is ultimately no way of knowing how precisely this traditional idea correlates with modern science.

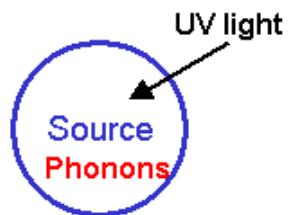
However, we can report on some of the qualities of the Source Driver, which are of clinical interest. Firstly, it has no communication whatsoever with the visible light spectrum. Yet the idea of light affecting the way we bring energy into the body is not entirely wrong, for it is ultra-violet light that is able to communicate with Source Driver.

Thus, we have in the cavities of the body some ultra violet, some source (yuan), which cannot yet be identified in the terminology of science, and also some phonons.

In the cranial cavity, we find that there are low frequency sounds generated in the brain, called alpha, beta and delta waves. Just why and how the brain makes these sounds is not explained.

In the chest cavity, there is the sound of the lungs, the 'lup-dup' of the heart and many other highly complex sounds. The sounds are magnified by the various resonating structures of the chest cavity. The heart also produces photons.

Then we find that there are 'normal' sounds created day and night within the abdominal cavity. This does not refer to the occasional release of flatus or belching, but the constant noises associated with peristalsis and the digestive process.



In addition, the body produces complex pressure waves, which are important in fluid dynamics for the creation of an energy field.

All of the organs of the body open and close in regular and well-orchestrated patterns. The brain itself expands and contracts with its flow of cerebrospinal fluid and skull dynamics, just like the heart, lungs and intestines. This slightly alters the tuned frequency of the space continually, and creates small pressures inside and outside of the organs and cavities.

## 4.7 Links Between Two Systems

There are certainly two parallel systems running through the body. One is the biochemical system, which has many electrical characteristics. But this system stops short of information transfer within a field. The other system is currently being investigated in the light of advances in physics that have occurred since 1984.

However, the real electromagnetic wave is required to carry the virtual wave and the information, with which we believe it is imprinted. This means that the two systems can never be separated, since one creates the other and this in turn feeds the first with information.

A key to unlocking the meaning of each system is needed. In the electrochemical system, the body feeds on the energy created by the breakdown of sugars and carbohydrates. This in turn powers the cell and warms the body in a way that is not yet fully understood. But the bioenergetic system is markedly different. It is basically a self-limiting system as far as energy production is concerned. This is because there has to be something to stop the system going into excessive, runaway heat production, which could threaten to destroy the organism altogether. Spontaneous human combustion has been recorded on many occasions, but it does not fit into the electro-chemical system of thought and so it is dismissed. For us, however, it is most revealing, as it could represent the inability of the body to regulate its own heat production.

So what makes one think that the bioenergetic system has anything to do with the production and regulation of heat? The wave breakdown in Integrator 12 is close to the infrared and heat area, at a frequency of  $10^{13}$ . That is one observation, and the other one is an occult one. Tibetan lamas today still practice something they called Tumo. When they are accomplished in this form of meditation, they can don water-soaked blankets and sit out in subzero mountain weather all night. By making a certain sound and by breathing in a certain way, the initiate manages to generate enough heat to dry the blanket, overcome the horrific wind-chill factor and survive in the snow at night. In the bioenergetic system proposed by Fraser, sound is phonons and this is the start of the energy system.

Heat is evidently produced by wave breakdown, when a lot of magnetic ‘confetti’ is released from the magnetic envelopes of waves. This is produced in two ways. First, within the chest cavity there is oxygen exchange and carbon dioxide excretion. This creates a huge cloud of magnetic particles that may be of importance in the imprinting task of the heart organ, with its wide variety of sounds.

Secondly, wave breakdown also occurs in every part of the body in the circulatory system when the haemoglobin gives up its oxygen to all cells in an organized and controlled way. The chemical system lives off the oxygen and the sugars, while the bioenergetic system lives off the magnetic confetti produced by this process. This goes on throughout life.

The link between the two systems is the cloud of magnetic confetti. Both systems need this factor, and so it is a *sine qua non* of the system. The greatest activity of this linking cloud of particles is found in Integrator 2 for the heart and lungs, and Integrator 10 for the circulatory system.

## 5. The Heart as Imprinter

In bioenergetics the heart's physical function of simply pumping blood is extended into another dimension, literally. Indeed, the key cardiac function on the virtual level is that of satisfying the body's insatiable need for information. The constituent parts of our bodies, from cellular structures upwards, are highly efficient at performing various kinds of work. However, they must be informed and directed in multiple ways about what they should do in order to perform efficiently. Information transfer is as vital to the body as phone lines and transmitting stations are to the Internet or to television networks. Without such connections their structures and functions collapse.

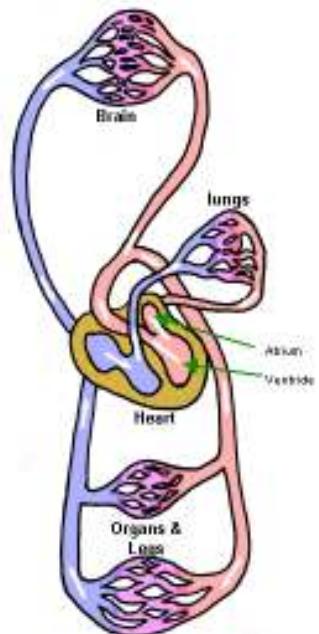
The basic concepts of the cardiac information imprinting function and information transmission throughout the body are introduced here. In the broader Diploma Course you can learn more about these processes, along with the bioenergetic roles of lymph and cerebrospinal fluids.

### 5.1 Conventional View of the Heart

The conventional view of the heart is as a double circulatory blood pump. It pumps deoxygenated blood, with its red blood cells (erythrocytes, whose haemoglobin is laden with carbon dioxide), to the lungs where this is exchanged for oxygen. The oxygenated blood re-enters the heart and is pumped to the organs and limbs through the arterial circulation. The arteries progressively divide into minuscule capillaries, which feed the tissues and cells with oxygen and sugar. This provides the fuel for the generation of energy through the Krebs cycle within the mitochondria. As energy is released, the by-product carbon dioxide is produced, and this is reabsorbed into the haemoglobin, and the deoxygenated blood is drawn to the heart through the veins once again. The uninterrupted repetition of this cycle is the 'life blood' of our physical and virtual existence.

Blood is a complex medium that has been subject to considerable study and research, with its once medical specialty of haematology. Many fascinating and elegant biochemical processes have been discovered and documented. The supply of oxygen and removal of carbon dioxide is just one of the many functions that the blood performs. Others include:

- removal of metabolic waste products from the cells for excretion
- transportation of hormones to target organs and tissues
- immune function through transporting white blood cells for combating free radicals, foreign proteins, toxic chemicals, and microbes, and for promoting tissue healing
- carrier of blood sugars, proteins and lipids, vitamins, minerals and all other nutrients



These classically accepted functions of the heart and blood remain unquestioned by biochemical science and medicine. However, on deeper inspection there are a number of anomalies that cannot be explained by this model.

### **Physical issues**

The body contains 8 to 12 pints (4 to 6 litres) of blood, which circulates 1,400 times per day through a network 60,000 miles (97,000 km) of blood vessels. Blood has a viscosity about five times that of water, making it considerably thicker and more 'sticky' than this fluid.

*Fluid dynamics* is the science which seeks to understand the nature of fluid behaviour when flowing through constricted spaces. This well-developed science is used every day by engineers, for everything from water supply networks and hydraulic machinery to aircraft wings and spacecraft engines. If the tried and tested calculations of fluid dynamics are applied to the pumping of blood, then there appears to be a discrepancy between the size of heart required to do this work, and anatomical reality. According to fluid dynamics, the heart is simply far too small and operates at too low a pressure for it to do its job. Another mechanism, not yet explained, must be involved to assist in the flow of blood.

### **Foetal blood flow**

Embryologically, one can see that there is circulation of blood *before* the heart has developed to the stage at which it can work as a physical pump. Foetal blood flow was first explained using the idea that the mother's heart pumps the blood of the child's. Later studies showed that the blood of the mother never enters the body of the child, and that the oxygen and nutrients in the blood system of the mother is simply passed across a placenta membrane. This means that there is no mechanical way that the mother's heart can pump the infant's blood.

### **Heart rate variability**

Conventional thoughts on the heart suggest it should have a fairly consistent rhythm. However, detailed studies have shown that the heart rate is far from consistent and, surprisingly, the healthier a person is, the more the variation in beat times. In fact, it is only the sick who have a constant heart rate, with little variation. This cannot be explained through conventional biochemistry and physiology, despite considerable knowledge about the mechanisms of the cardiac pacemaker.

At a practical level, heart variability can be used as an excellent gauge of the effectiveness of a therapeutic treatment. If there is an increase in variability, then the therapy is beneficial.

### **Blood supply**

Studies show that it is the carbon dioxide, not the oxygen, level in the blood that causes the heart to increase or decrease its pumping rate. Yet blood supply rates to different areas of the body are not

constant and vary continuously to meet the requirements of local tissues. It is simply not known how the body is able to send the right amount of oxygenated blood to the areas in need. With a total of some 60,000 miles (97,000 km) of blood vessels, it seems inconceivable that a single pump could supply a balanced flow of blood to all vessels and adapt the flow as required. There *must* be some other mechanism involved in this process.

In summary, we can see that the model of the heart, purely as a functioning pump, has some serious shortcomings. The study of bioenergetics has investigated the cardiovascular system in some detail and discovered a whole new facet to its functional operation. Furthermore, it offers a logical explanation and resolution of the above anomalies.

## 5.1 The Biophysics View of the Heart

The principal notion of bioenergetics is that the heart acts as *information imprinter*. That is, it transfers 'static' information (instructions on maintaining homeostasis) stored in the CNS to every cell in the body via the bloodstream. The cells decipher the information or detailed instructions and set about acting on them. Subsequently, cells provide information on their activity back to the CNS via the deoxygenated blood. This feedback loop is vital to maintaining homeostasis at a cellular level.

Healthy cells are able to correctly decipher instructions, react and carry them out. If, however, the cells are compromised by the myriad of possible toxins, deficiencies and impacts, they will not be able to fully act as intended. If the deciphering process performed by the Energetic Integrators is compromised, the cells receive the wrong instructions or an incomplete set of instructions. This can cause high levels of proteins to appear in the cells, which itself becomes a further cause of toxicity.

The negative spiral caused by the cellular toxins is dealt with in two ways. Firstly, the heart will repeat the information, trying to correct it on the second attempt. This results in the same information being produced by the heart and explains why healthy hearts have a greater variability in heart rate. Secondly, cells die off or divide, allowing corrections. When division occurs, the cellular toxin level drops, allowing the correct information to be received.

This dynamic system provides information that controls the distribution and use of material in the bloodstream and the removal of wastes. It also regulates the division of new cells and the functioning of cell organelles. The information has a very specific order and pattern, allowing large quantities of data to be shunted from a single source, without confusing its discrete divisions and sections.

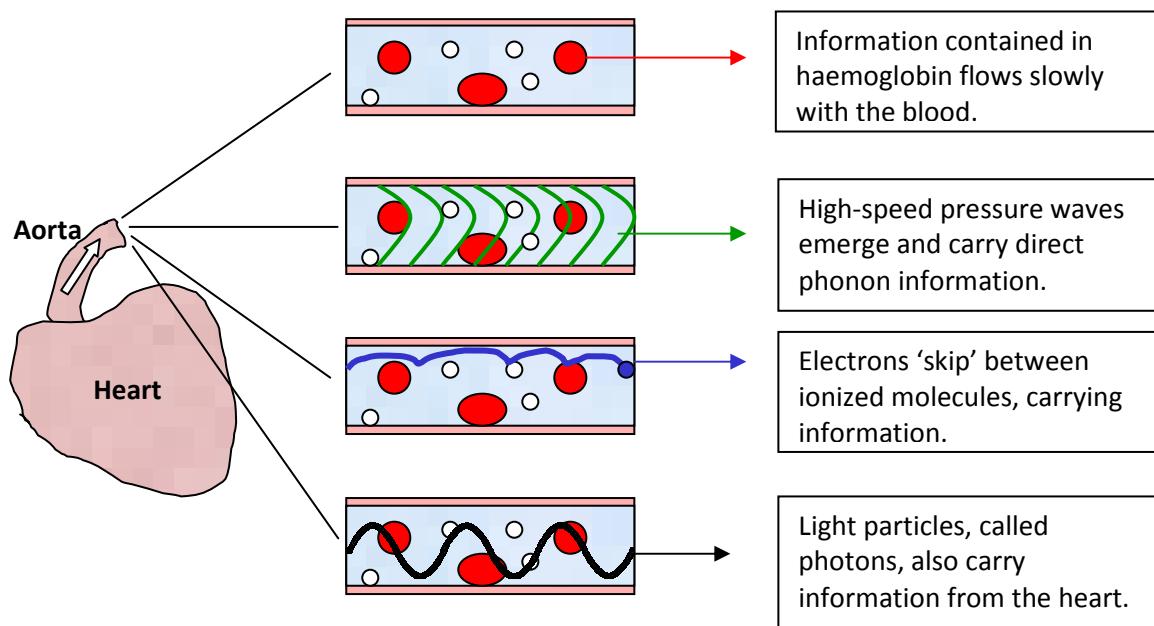
### 5.11 Imprinting function

Every time the heart beats, it creates intense pressure and sound waves within its chambers. These waves are called *phonons*. They travel through the blood plasma carrying information from the CNS to be temporarily imprinted in the haemoglobin. Interestingly, erythrocytes, which carry the haemoglobin, have no DNA and thus form a neutral information carrier. This is another fact whose

meaning has not previously been explained by biochemical science. The heart has been recorded as producing over 260 frequencies of sound. These frequency variations, along with the heart beat intervals described above, are part of the information transmission process.

If you are familiar with homeopathy, you are aware that the production of homeopathic preparations involves a mother tincture, subjected to a progressive, staged, dilution process. This results in a remedy that has been diluted anywhere from thousands to hundreds of millions of times, depending on the 'potency'. Fundamental to homeopathic pharmacy is the process called *succussion*. Succussion involves subjecting the liquid, at each stage of the dilution process, to a strong, repetitive, physical vibration. This is what allows the information inherent in the original material to be carried onwards through the dilution process. Finally, the homeopathic preparation is diluted to the point where it rarely contains a single molecule of the original substance. Yet the information remains, and indeed is tremendously more potent and liberated to act upon the human body-field. In many ways, the heart can be seen as a succussion device, transferring information to the blood through staged and rhythmic vibrations.

Apart from directly imprinting information into the haemoglobin molecule, there are three other information transmission mechanisms associated with the heart. Some of the phonon sound waves escape from the heart chambers and travel directly through the blood as high-speed pressure waves. The heart also produces a small quantity of electrons, which are electrically conducted via the blood, and skips between ionized molecules. The final mechanism is light transmission through production and dissemination of photons. These mechanisms can be summarized graphically as:



## **5.12 Phonon, electron and photon**

The information distribution occurs through three separate particles – phonons, electrons and photons. This overlap or ‘redundancy’ is imperative to the adaptability of a living organism. Each of these particles can experience situations where the information that they carry is lost.

If blood pressure drops excessively, the phonons in the blood can be absorbed into the tissues of other organs. The phonon is the slowest, yet the most reliant, of the three substrates. The approximate speed of phonons in water is 1,482 m/s. They have a low energy usage and are not adversely affected by electromagnetic fields (EMFs) or light-absorbing material in the blood and associated tissues. The positive and negative feedback of the phonon is slow, due to this low velocity within the body. This allows phonon energy to act as a buffer, maintaining the body through small periods of change. The phonon transfer of information can be responsible for the rise in blood pressure when the body is under stress. The higher the pressure, the faster phonons will travel. The heart produces a large number of sounds, many of which can be observed throughout the body.

Electrons require more energy to be produced, but travel faster than phonons. The speed of an electron in ionized water is approximately 75,135,954 m/s. In high electrostatic conditions, the electrons that carry the information are disrupted and can be displaced. The electrons in the blood skip along the ions and haemoglobin. The conductivity of the blood can increase and decrease according to the minerals dissolved in it. People who are more fit have a lower resistance in the blood than people who are less active. Adrenalin also has the effect of increasing the electrical conductance of the blood. An adrenalin surge will kick-in the high-speed information transfer mechanism of electrons.

The photons produced by the heart require a large amount of energy, so if energy is not freely available they cannot be produced. The larger the quantity of photons in the blood, the faster the information can travel. This type of transfer is used as a temporary or emergency mechanism, and not for general everyday use in the body.

## **5.13 Virtual information**

All of the above transfer mechanisms exist within the realm of the *real*, while the actual information exists in the *virtual* realm. We can look back to the analogy of the train ticket introduced in Module 1. Plasma, phonons, electrons and photons form the fabric of the ticket. They are not the information, which is the writing on the ticket. The information associated with the heart and blood is in the virtual realm, which exists in parallel with the real. The Energetic Integrators exist in the virtual realm around the DNA of every cell, and are responsible for deciphering and distributing the virtual information transferred by the blood.

While these concepts are profound and complex, the essential point to keep in mind is that the blood transfers information from the CNS to the cells, with the heart as mediator.

### **5.14 Heart beat variability**

The changeability of the heart rate is a gauge of the health of the body. The heart is involved in many kinds of information in the body. The more information it is dealing with, the wider the range of heart beats. The wider the range of such heart rhythms, the more information it is able to transmit. In unhealthy people, the heart rhythm is very consistent with only small variations. In such a case, the heart is concentrating on transmitting only the most vital information and so ensuring this gets through. With healthy people, the variation is larger, and is reflected in the heart transmitting more information, far beyond merely the essentials. This gives the body more responsiveness and adaptability.

As an analogy, think of a drummer producing single consistent beats: boom, boom, boom, boom. While there is time-keeping here, it is purely a beat, not a tune. A tune or melody is introduced on top of the beat, while the beat maintains the timing. In health, the ‘heart beat’ should be thought more of as a ‘heart melody’ with its variations, ups and downs and repeating themes and choruses. If you are familiar with traditional Indian music, you will be aware of an entirely different concept regarding ‘the beat’ as we understand it in the West.

### **5.15 Magnetism of the blood**

It is well known that blood has magnetic properties and it is becoming increasingly clear that there is a magnetic component to the process of blood cycling though the body. Oxygenated blood is polar magnetic (has both north and south poles) and deoxygenated blood is paramagnetic (has no poles but still reacts to magnetism). It is this difference in magnetic properties that acts as a drawing force to create blood circulation. Thus, the heart’s pumping function can be seen as being more directly associated with cardiac-lung circulation. This magnetic drawing action also provides an explanation of how blood can move around the foetal organism before the heart has fully formed.

### **5.16 The mid-brain**

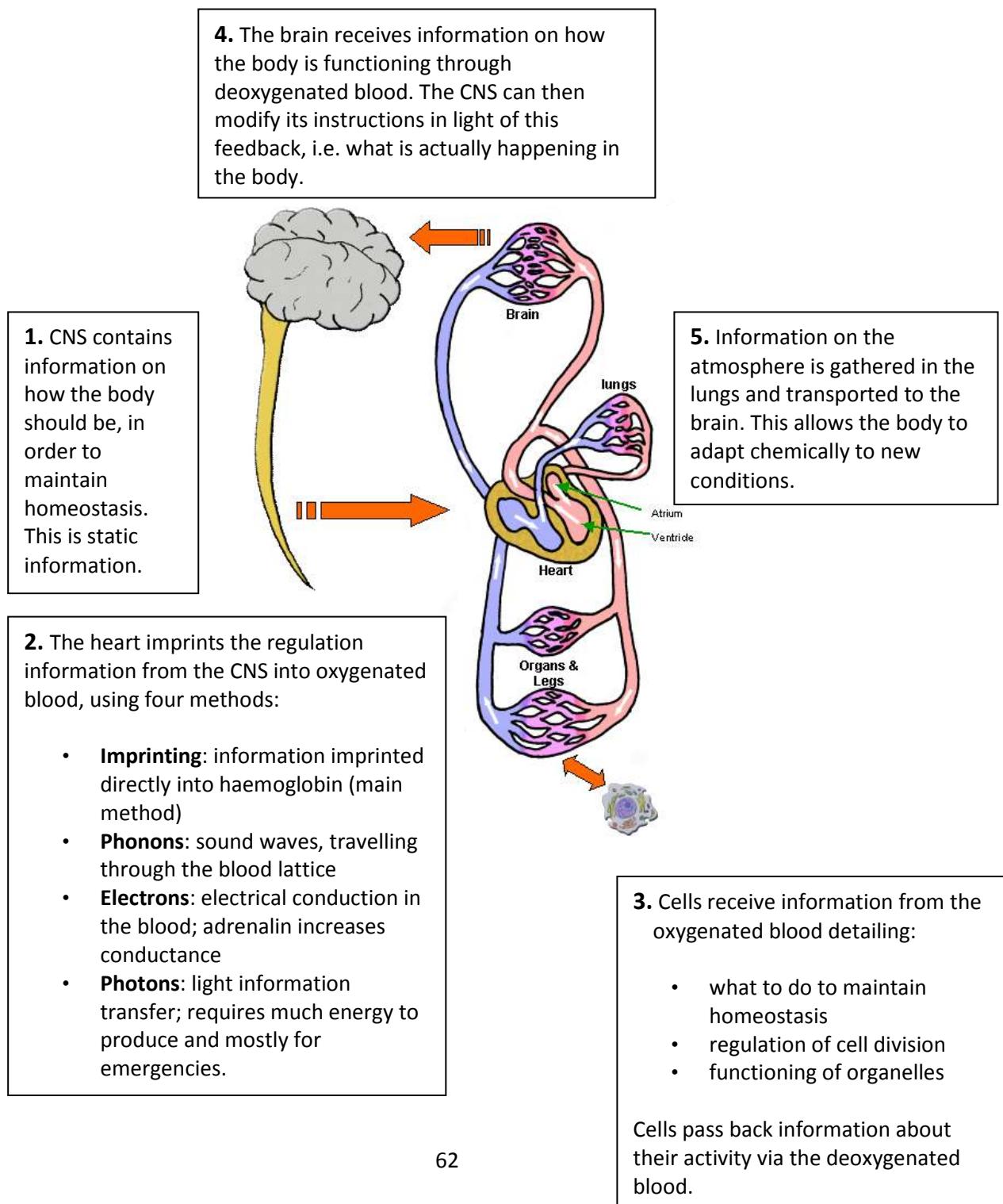
The heart is virtually connected to the mid-brain and delivers and receives information from this CNS structure. Migraines result when the information in the brain cannot be received or delivered. This causes high energy levels in the brain that result in spill over to the sensory nerves of the brain. This is the reason why there is an acute sense of sound and light during headaches, as well as increased blood flow, as the heart attempts to repeat its unanswered messages.

On the other hand, when information from the mid-brain cannot reach the heart, the information controlling homeostasis is block or slowed, creating a variety of disturbances and symptoms.

## 5.17 The lungs

Information on the atmospheric conditions is gathered in the lungs and transported to the brain. This allows the body to adapt chemically to new conditions.

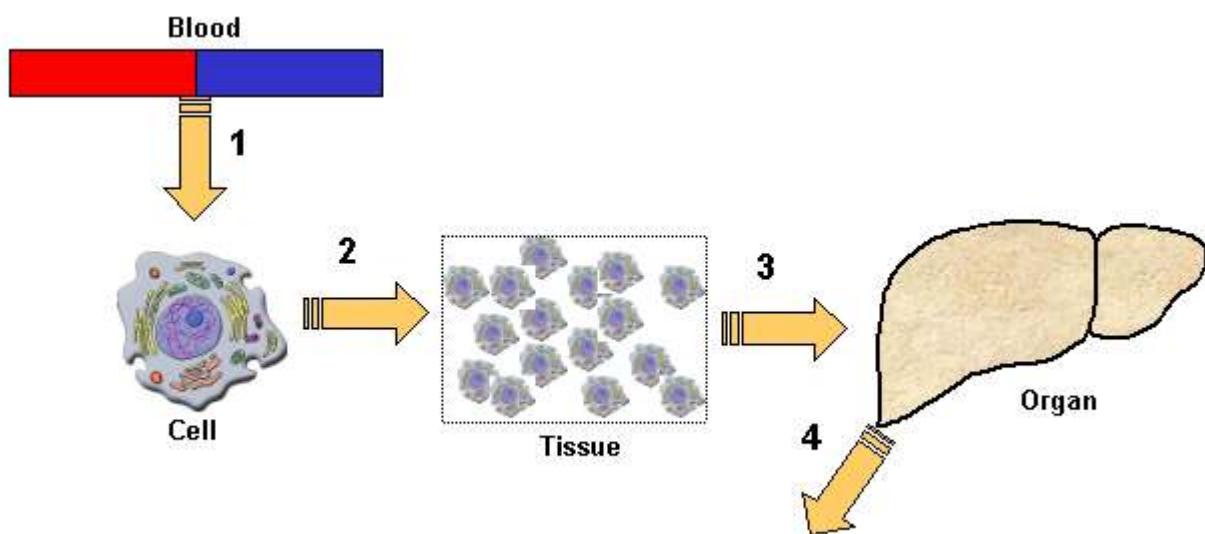
### Summary of Heart Imprinting and Information Transfer



## 5.2 Information Transfer from Cells to Organs

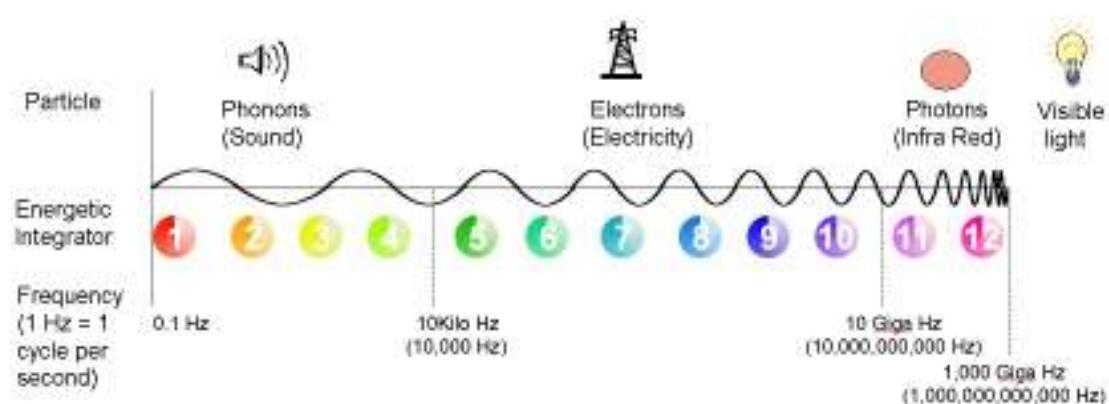
So far we have described how information is imprinted into blood and transferred to cells. Here we can briefly look at how this information is passed on to the organs.

Every cell in the body receives information on what to do through the bloodstream. This complex information is deciphered to form cellular instructions. Tissue is formed when common cells group together. Each cell in the tissue performs similar or related tasks and acts on the same information. Through a process known as *aggregation*, the information supplied to the cells is reformed and simplified in a group action to reveal *tissue level information*. This instructs the tissue on what actions to perform. Tissues group together to form organs and a similar aggregation process in the tissues produces *organ level information*. As described in the section on cavities, the ‘pointy’ parts of an organ act as an inter-organ information transfer portal.

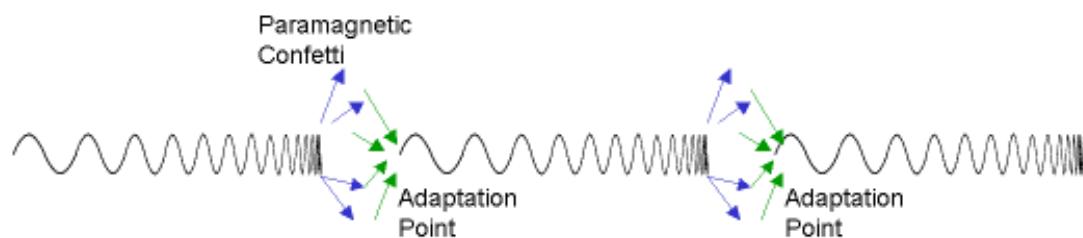


## 6. The Big Body Wave

Understanding the concept of the Big Body Wave (BBW) is crucial, since it represents at a quantum level the ‘picture in space’ of the state of the whole organism. The BBW is the carrier signal for the Energetic Integrator system, the very basis of ProVision analysis. This signal is a waveform, repeating many times per second. It begins at EI-1, existing as a very low frequency sound wave, and moves through an ascending sequence of frequencies, ending at EI-12 with frequencies in the infrared region.



When the BBW reaches this end point (EI-12), the wave breaks down into ‘paramagnetic confetti’, the building blocks of an electromagnetic wave. It then reforms as the starting point of a new BBW. This point, at which the wave breaks down and then reforms, is called the Adaptation Point (AP). This crucial transition creates the possibility of rebuilding the wave each time with slight differences, i.e. adapting the wave. If the body is experiencing detrimental or disruptive shocks of any kind, the wave tends to become distorted in form and function. Infoceuticals assist the BBW to reform itself into a more ideal configuration. Thus, the existence of the AP creates the possibility for ongoing change, and for healing the organism of its accumulated disruptions.



(Note: paramagnetic confetti consists of four monopoles – north, south, east and west and is formed as chemical reactions take place at the point of the breakdown and re-assembly of the BBW.)

This is not unlike the analogy of building a model house from Lego and then breaking it down in order to rebuild the model again. If it was only built once, its form would be fixed and it would be unable to adapt to impacts, stresses and changing influences. By repeatedly and constantly building, disassembling and rebuilding, there is an opportunity to alter the internal design to meet different, and sometimes sudden, requirements and needs.

Homeostasis, whereby the organism continually adapts to environmental changes in order to retain balance and normality, is the cornerstone of physiology. The ability to continually restructure itself makes the BBW responsible for regulating all life processes, and provides the bioenergetic explanation for homeostatic activity in the body.

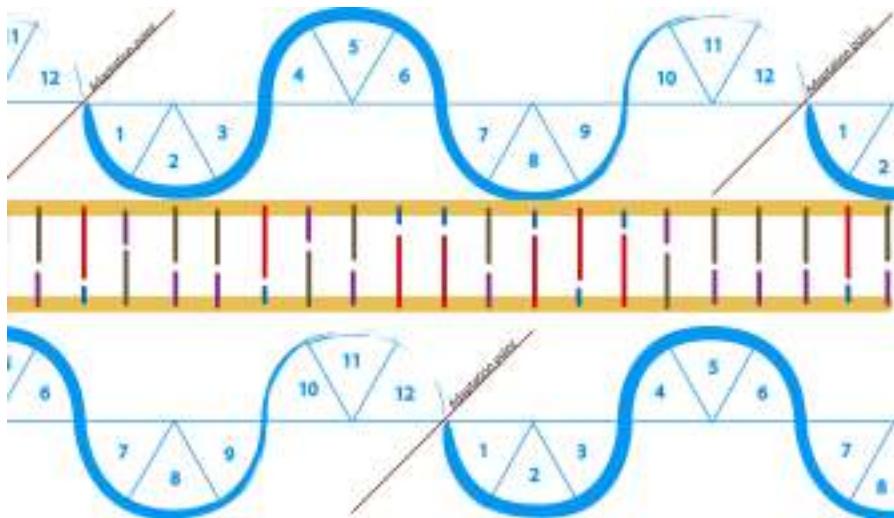
Remember that Energetic Integrators represent the field structure of DNA and organize information within the twelve energy compartments. The forming and reforming of the BBW takes places multiple times per second in every cell of the body. This is synchronized to occur in the same way, at the same time, throughout the entire organism.

### **Double wave**

If we look at the DNA of the cell, we can see that there are two separate sides to the double helix. The field that is found around the DNA is where the information originates.

The DNA has two separate waves moving along it at the same time. As discussed above, the BBW has to break down at the adaptation point. This allows the body to adapt to different situations. This breakdown of the wave causes all information in the body to stop only momentarily, but long enough that if there is any disturbance, then the wave could not reform and kill you. This is why there are two waves. The BBW has no change in the movement of the wave from compartment six to seven and forms one singular wave with two cycles.

While the one half of the DNA is breaking down, the opposing side is only half way through its two-cycle wave life. The coherence of the waves at points one and seven, two and eight, etc., allows for the two waves to move together without interference.



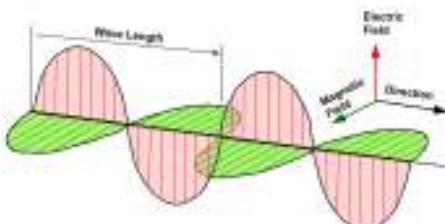
The illustration shows the disturbance in the field around the text and is called Geno-Morphic. You can think of it as the source material from where the body learned the function. This source material needs to be retained as it is sometimes needed as the body can forget/lose the information on how to perform a task successfully. At this point the body will look back at the original and cause a disturbance in the field.

The BBW is repeated many times in the body. There are 4 per chromosome and, therefore, 8 per chromosome pair and 184 per cell, excluding red blood cells, which have none. These BBW fields are situated in every other living cell and, therefore, will have a large impact on the functioning of the organism.

## 7. Biophysics Glossary

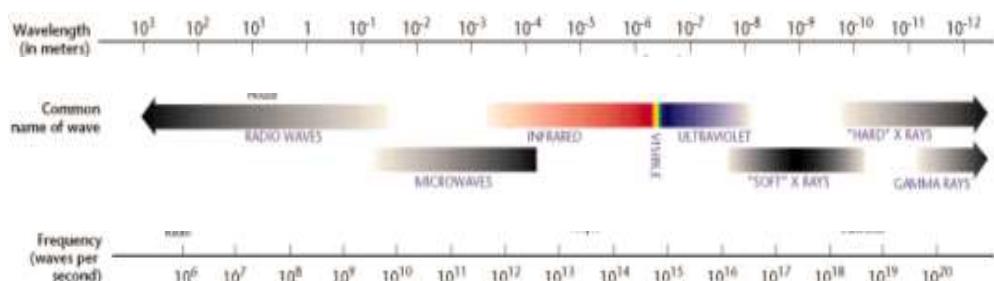
This glossary is for reference. It includes all the new and unfamiliar terms that you have encountered during your studies. Thus it is recommended that you read it through once in its entirety to facilitate an understanding of these important concepts.

|   |   |
|---|---|
| <b>Biophysics</b>                                   | A method of describing biological functions through an understanding of quantum physics. The principal considerations of biophysics are the HBF and the idea of information transfer by photons in a Biological Quantum Electrodynamics field (QED). Biophysics and Quantum biology are two intimately linked principles.   |
| <b>Biological Photon</b><br>(Biophotonism)          | Biophotons are a specific range of like emissions that are produced and used by biological systems. These are not within the visible light spectrum and, therefore, cannot be seen by the human eye. In 1976 Fritz-Albert Popp showed evidence of a weak but permanent light emission from plant and animal cells. It has subsequently been found that DNA is the source of biophotons. Evidence suggests that these are the key mechanisms responsible for triggering biochemical reactions in living cells.                 |
| <b>Biological Quantum Electrodynamics</b><br>(BQED) | BQED describes the process of information-transfer within biology occurring at the subatomic level. It is a special case of Quantum Electrodynamics (QED) and is dependent on the presence of electromagnetic wave energy, gravity and an electrostatic field charge. See Quantum Electrodynamics.  |
| <b>Chaos theory</b>                                 | Chaos theory is concerned with finding the underlying order in apparently random data. It is based on a set of ideas that attempts to reveal structure in periodic, unpredictable systems through mathematical probabilities. The theory suggests that a small change in one area can have a very large influence on another. Thus it is sometimes referred to as the ‘butterfly effect’, hypothesizing that if a butterfly flaps its wings in one part of the world, the effect can be a storm in another, remote continent. |
| <b>Charge</b>                                       | A charge is a quantity that an object is intended to receive. There can be a <i>negative charge</i> , suggesting that the object has to diminish in its quantity to reach its intended level. A <i>positive charge</i> generates an increase in order to reach intended levels. When the level has been met, there is no longer a charge. See also Electrical Charge  |

|                                    |   |
|------------------------------------|---|
| <b>Compartment</b>                 | Compartment is another term for Energetic Integrator, emphasizing its structural containment of body fields and energies within the electromagnetic spectrum. See Energetic Integrator.   |
| <b>Confetti</b>                    | Constituent part of an electromagnetic wave. See Magnetic Confetti  |
| <b>Cooper pairs</b>                | Cooper pairs are sets of electrons within a superconducting metal that are coupled over distance due to interactions with the crystal lattice within which they are traveling. In other words, they share the same structure and can therefore communicate with each other regardless of distance. See Quantum Entanglement.  |
| <b>Deoxyribonucleic acid (DNA)</b> | DNA molecules are long, linear polymers found in the nucleus of a cell, formed from nucleotides and shaped like a double helix. They are associated with the transmission of genetic information.   |
| <b>Detoxification</b>              | Detox is the process neutralizing and eliminating toxins from cells, interstitial fluid and organs. During the process, higher level of toxins may appear in the bloodstream as toxins leave deeper tissues. See also Drainage.   |
| <b>Drainage</b>                    | Drainage is the removal of toxins from the body through the elimination organs of the skin, lungs, colon and kidney. If this process is incomplete the toxin may return to the tissue of the body, the so-called 'ping-pong effect'.  |
| <b>Electrical Charge</b>           | A charge describes an energy level above or below the point of zero interaction. This represents a potential to do work. This process is specific to electrons and is what is commonly referred to as electricity.  |
| <b>Electrodynamic Field</b>        | See Quantum Electrodynamic Field.   |
| <b>Electromagnetic Radiation</b>   | Electromagnetic radiation includes all energetic forces, such as light, which are produced by interacting electric fields and magnetic fields moving together through space at the speed of light.  |
|                                    |  <p>The electromagnetic wave is often described as a dual wave. The diagram shows two waves, one electrical and one magnetic, (hence electromagnetic) at ninety degrees to one another and mutually dependant i.e. one cannot exist without the other. They also move in unison.</p> |

## Electromagnetic Spectrum

This spectrum is the range of frequencies in which electromagnetic radiation exists. The low end begins around 1 Hz cycles per second (see frequency) and extends up to  $10^{28}$  Hz (10 with 28 zeros) which represents cosmic rays. Visible light exists near  $10^{15}$  Hz.



## Electron

An electron is a negatively charged particle found in a cloud surrounding an atomic nucleus. An electric current is a flow of electrons.

## Electrostatic

An electrostatic charge is a concentration of free electrons in one area, resulting in a negative charge. This is commonly experienced as a shock from 'static electricity' when walking on nylon carpets. Lightning is another example of an electrostatic discharge.

## Energetic Driver (ED)

Energetic Drivers are the power supply of the HBF. These could be regarded as the batteries of the biological circuit. Each of the 16 Drivers is associated with a particular organ or body system.

## Energetic Integrator (EI)

Integrators are virtual energetic magnetic vector clusters existing in the energy field of DNA. There are 12 EIs and each is responsible for specific information-transfer associated with various body systems and cellular regulation. Integrators act as a descriptor for the biological compartments of the human body. They link systems in the body to allow for the correct levels of information-transfer. The EIs exist in the energy frequency range of photons, electrons or phonons.

## Energetic Stars (ES)

Energetic Stars form metabolic pathways and represent the survival mechanisms of the body. There are 15 ES Infoceuticals, which have been designed to energize and clear major blocks in the body field.

## Energetic Terrain (ET)

An ET is an energy structure in space through which the flow of healing information in the HBF takes place. These distortions occur in specific body tissues. So far 16 ETs have been identified. Malfunctioning ETs support the virtual component of microbes.

|                               |   |
|-------------------------------|---|
| <b>Entropy</b>                | Entropy is a measure of the amount of disorder in the universe or the availability of energy for work. This describes the link between order, disorder and energy exhibited by the universe.  |
| <b>Frequency</b>              | Frequency is the number of repeated cycles in a set period of time. It is often described in terms of Hertz (Hz) as the number of complete cycles occurring per second. Low pitched sound has a frequency in the order of 50 Hz, while a high pitched sound would be of closer to 10,000 Hz. See also Wave.   |
| <b>General Relativity</b>     | General Relativity is an attempt to describe the phenomena of the world as a mathematical expression. Basically it states that the rate at which time moves is related to the speed of light. See Relativity Theory.  |
| <b>Geno-morphic</b>           | A Geno-morphic field is an energy field that causes change in the protein structures of the cells in the body. These are negative or aberrant changes to the normal or healthy functioning of fields and living tissue caused by a variety of toxic influences.   |
| <b>Geopathic Stress</b>       | Geopathic Stress is the result of disharmonious energy fields radiating from the earth that cause faults in the energy systems of an organism. This is most often generated by subterranean watercourses (i.e. underground rivers). Geopathic stress can provide the terrain for the development of a number of serious health conditions. Spending prolonged periods of time (such as sleep) over geopathic stress lines creates susceptibility to ill-health in general.                      |
| <b>Human Body Field (HBF)</b> | The HBF is a self organizing master control mechanism for all body processes. The HBF is <i>powered</i> by Energetic Drivers and <i>regulates</i> body processes through Energetic Integrators. Key to the understanding of the HBF is the idea of information-transfer via photons within a Biological Quantum Electrodynamics field. The HBF consists of a huge number of Magnetic Vectors that cumulatively direct all information required to regulate every chemical reaction in the body. |
| <b>Infoceutical</b>           | An Infoceutical is a therapeutic substance that contains Quantum Electrodynamics information. This information interacts with the Human Body Field at an Energetic Driver, Energetic Integrator, Energetic Terrain or Energetic Star level to correct distortions in the information field map.   |

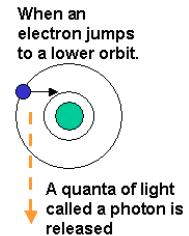
|                             |   |
|-----------------------------|---|
| <b>Information</b>          | From a bioenergetic perspective, information consists of <i>magnetic confetti</i> arranged in a specific order. Information and energy are synonymous at the quantum level.   |
| <b>Information Field</b>    | An information field is an area in which information can be found. This includes the area of information transfer as well.  |
| <b>Information Transfer</b> | This term designates transfer of information from one virtual and/or biological structure to another.   |
| <b>Ionic Wave</b>           | An ionic wave is a pressure wave produced by ions (i.e. charged particles). The nervous system typically produces ionic waves through the transmission of nerve impulses.   |
| <b>Ionised Particle</b>     | An ionized particle is one that carries an electrical charge.   |
| <b>Light</b>                | Visible light is a small section of the energy field that contains photons. Light also extends above and below visible light in the forms of ultraviolet and Infra red, all of which are part of the electromagnetic spectrum. See Electromagnetic Spectrum.  |
| <b>Magnetic Vector</b>      | A magnetic vector is a section of magnetic structure that determines the direction of energy (and data) transfer. It could be considered a signpost that directs information transfer in the HBF. A vector indicates something that has both a direction of travel and magnitude or presence.   |
| <b>Magnetic Confetti</b>    | Magnetic confetti consists of small sections of magnetic information that collect together to form waves. In fact they are the building blocks of electromagnetic waves and are further liberated when the waveform breaks down. In bioenergetics confetti is associated with Source energy and has paramagnetic properties.  |
| <b>Meridian</b>             | Also referred to as an acupuncture meridian, these are invisible pathways that travel through connective tissue and facilitate energy flow in the form of Qi. According to TCM, there are 14 major meridians that traverse the body. Each meridian has a surface pathway near the skin and an internal pathway that connects with body organs. It is along the surface pathways that specific acupuncture points are found. |

|                       |  |
|-----------------------|--|
| <b>Neutron</b>        | A neutron is a neutral or non-charged atomic particle that exists in the core of an atom, along with positively-charged protons.   |
| <b>Paramagnetic</b>   | Paramagnetic is a non-magnetic substance that reacts to magnetic fields. Magnetic substances have two poles—north and south—and thus always try to align themselves with magnetic fields. Paramagnetic substances do not have magnetic poles but do react to magnetic fields. See Magnetic Confetti.   |
| <b>Particle</b>       | The particle is the fundamental building block of all matter. The six fundamental particles—electrons, neutrons, protons, neutrinos, photons and gravitons—make up our external experience. More than a hundred other lesser known particles that have been identified. Particles are considered to exist both as solid matter and as a wave, creating the so-called wave-particle duality of nature. The more massive the particles, the less obvious the wave properties. Thus electrons, having an extremely low mass, exhibit significant wave-like properties.  |
| <b>Path Integrals</b> | <p>This signifies a mathematical process of adding up quantum probability. This calculation is used to determine the most likely trajectory path of a particle. In quantum mechanics a particle can take any and every path to get from A to B. Path integrals predict the most likely path.</p> <p>The accompanying figure has been simplified into a graphical representation known as a <i>space-time diagram</i> that shows the beginning and the end result.</p>  |
| <b>Phonon</b>         | A phonon is the sound made by atoms and particles moving through a solid structure or crystal lattice. One type of phonon is the sound wave. When sound travels through a solid, the atoms in the lattice do not vibrate as single units, but instead oscillate collectively as acoustic waves. This can vary in frequency as high as 10,000 Giga Hz (10 followed by twelve zeros), which is near infrared light. Since these phonons travel at a velocity far higher than normal sound waves in air and obey the laws of quantum mechanics, they can be considered as a wave or a particle. Therefore, they can (1) be scattered by free electrons, (2) limit thermal |

conductivity and (3) increase the electrical resistance of a solid.

**Photon**

A photon is a massless and chargeless particle of light that travels at the speed of light. When an electron orbiting the nucleus of an atom jumps from an upper to a lower orbit, it releases surplus energy in the form of a quantum of electromagnetic radiation called a “quanta” or photon. As it travels through space, the photon appears as a vibrating electromagnetic field with all the characteristics of a wave. Photons and light are intimately connected. See Light.



**Photon Induced Superconductivity (PIS)**

This refers to the superconductivity produced from the interaction of photons and semi-conductors. This causes the resistance in the semi-conductor to drop to virtually nothing and allows for the transfer of electrons/electricity at a much higher rate and with less power draw.

**Polarization Wave**

A polarization wave is basically a compression wave caused by the movement of magnetic poles.

**Proton**

A proton is a positively-charged atomic particle found in the center of an atom, along with neutrons, which are neutral and carry no charge.

**Qi/Ki**

The Chinese concept of energy is termed Qi and is associated with the energy flow that occurs along acupuncture meridians.

**Quanta**

The term ‘quanta’ is the plural of ‘quantum’.

**Quantized Wave**

A quantized wave is a non-linear waveform.

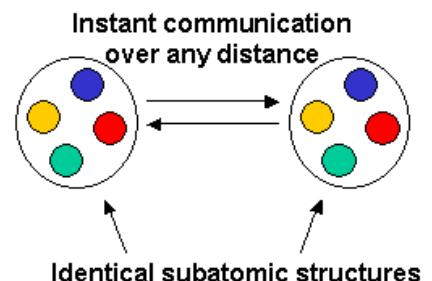
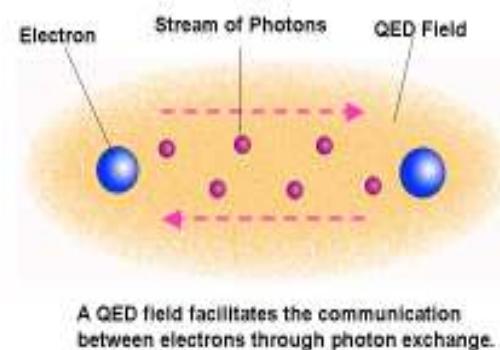
**Quantum**

Physical happenings occur in leaps rather than in a smooth, continuous form. The leap amount is called a quantum and is infinitesimally small. In fact, the quantum is the smallest amount of energy possible. An example is heat that is radiated from a hot surface in discreet packets of energy (quanta), not as a continuous stream of heat energy. Electrical charge also comes in fixed multiples of these basic units, i.e. the quantum of charge, which is equal to the charge on an electron.

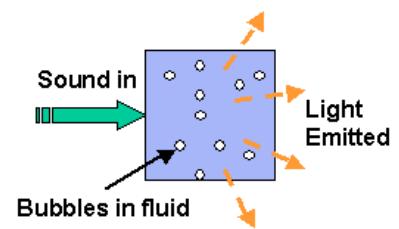
**Quantum Biology**

Quantum biology attempts to explain biological phenomena by incorporating the principles and understandings of quantum physics with the biological sciences.

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| <b>Quantum Chemistry</b>                         | Quantum chemistry integrates quantum physics in order to describe chemical phenomena. For example, the classical chemical molecular bonding theory (ionic and covalent bonds) is replaced by the theory of resonance interaction (communication) between electron clouds, through photon exchange. This exchange is facilitated by the presence of a QED field.  |
| <b>Quantum Electrodynamics (QED)</b>             | QED is the theory that describes the way electrically charged particles, such as electrons, interact or communicate with each another through the exchange of photons (light). The interactions between atoms and molecules depend on the arrangement of electrons in clouds around the nuclei and inter-atomic electrical forces. This means that QED can be used to fully explain the whole of chemical phenomena. |
| <b>Quantum Electrodynamics Field (QED Field)</b> | A QED Field is an area in space which allows the transfer of information through its shape, using quantum electrodynamics. This is portrayed here diagrammatically, showing the movement of photons, carrying information between electrons within the QED field.  |



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| <b>Quantum Theory</b>    | Quantum theory encompasses the concepts, ideas and theorems that link all branches of quantum study. See Quantum Physics.  |
| <b>Quantum Physics</b>   | This is the branch of physics that describes the behaviour of atoms, molecules and subatomic particles. The name quantum implies that physical processes do not happen in a continuous linear manner, but occur in a discontinuous, leaping fashion. These jumps are very small subatomic levels and are synonymous with electrons moving from one energy state to another. The small nature of the leaps gives the illusion of a world in which change is smooth and continuous. The world of quantum is also the world of chance and random behaviour, where probability is used to describe events. Quantum physics underpins all events in our experience of the material world.   |
| <b>Real</b>              | The real connotes the observable at a physical, electrical, magnetic and chemical level. Yet for all real actions and matter, there is a corresponding <i>virtual</i> and unobservable component. Virtual and real are interconnected; One cannot exist without the other.   |
| <b>Relativity</b>        | Relativity is a mathematical function, used to describe time in accordance to probability. See Relativity Theory.  |
| <b>Relativity Theory</b> | This is the name given to two theories developed by Albert Einstein at the beginning of the 20 <sup>th</sup> century. The <i>Special Theory of Relativity</i> describes objects moving at constant velocity, near to the speed of light. The <i>General Theory of Relativity</i> describes objects subject to gravitational forces. These theories are classified as 'classic' for they do not take into account Quantum Mechanics. However, their discovery led to the development of Quantum Mechanics and the idea of the random nature of the Universe. Ironically, Albert Einstein never accepted the theory of Quantum Mechanics. See General Relativity and Special Relativity. |
| <b>Shock Adjuster</b>    | This term denotes an infoceutical that repairs errors or damage caused in the body's reordered energy fields.  |
| <b>Sonoluminescence</b>  | The term indicates a phenomenon where light (photons) is produced from a liquid when exposed to sound waves. The emission of light comes from the bubbles in a liquid as it is excited by sounds. Discovered by scientists at the University of Cologne in 1934, the way a low-energy-density sound wave can   |



concentrate enough energy in a small enough volume to cause the emission of light remains a mystery.

**Special Relativity** Einstein's Theory of Special Relativity results from two statements or basic postulates.

1. The speed of light is the same for all observers, no matter what their relative speeds.
2. The laws of physics are the same in any inertial (i.e. non-accelerated) frame of reference.

This means that the laws of physics observed by a hypothetical observer, traveling with a relativistic particle, must be the same as those observed by an observer who is stationary in the laboratory.

Given these two statements, Einstein showed how definitions of momentum and energy must be refined and how quantities such as length and time must change from one observer to another. This must be so in order to get consistent results for physical quantities such as particle half-life. To decide whether his postulates are a correct theory of nature, physicists test whether the predictions of Einstein's theory match actual observations. Indeed many such tests have been made—and the answers Einstein gave are correct every time.

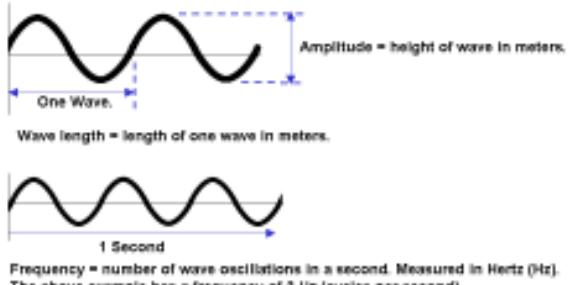
**Spin** Spin, in relation to atomic theory, describes how two atoms can be in the same space at the same time, as long as they are spinning in directions counter to each other. Therefore, physicists describe atoms as having the same spin or opposite spin.

**Stars** See Energetic Stars.

**String Theory** Theory describing matter as strings of energy.

**Subatomic Particle** Particles that make up atomic structures includes Protons, Neutrons, Electrons, Photons. See Particle.

**Super Conduction** Very low resistance conduction of energy. Most often associated with materials cooled to near absolute zero (-273 degrees centigrade) that can conduct electricity without loss.

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| <b>Toxin</b>                     | Substance found in the body at a higher than normal level. Anything that is absorbed by the body and cannot be put to good use is classified as a toxin.   |
| <b>Virtual</b>                   | Quantum processes that go on below the threshold of detectability but which influence the observable, real world. This is particularly notable in Quantum Electrodynamics where electrons are envisaged as being surrounded by a cloud of virtual photons which are constantly emitted and reabsorbed. Real and Virtual are interconnected. One cannot exist without the other.  |
| <b>Wave</b>                      | <p>A wave is an oscillating disturbance that moves through a medium or through space. The familiar pictures of waves on the sea or ripples on a pond are essentially the same image that physicists have of waves as they are visualized in quantum physics.</p>  <p>The diagram shows a sine wave with three key parameters labeled:      <ul style="list-style-type: none"> <li><b>Amplitude</b>: The height of the wave in meters, indicated by a vertical dashed line from the center to the peak.</li> <li><b>One Wave</b>: The length of one full cycle of the wave, indicated by a horizontal dashed line across the first crest and trough.</li> <li><b>Wave length</b>: The length of one wave in meters, indicated by a horizontal dashed line across the first crest and trough.</li> <li><b>1 Second</b>: The time interval of one second, indicated by a horizontal arrow pointing to the right under the wave, representing the period of the wave.</li> </ul> </p> <p>Frequency = number of wave oscillations in a second. Measured in Hertz (Hz). The above example has a frequency of 3 Hz (cycles per second).</p> |
|                                  | <p>Waves can have many shapes; the examples we are using here are known as sine waves, since they are derived from a trigonometry sine function. Other shapes include square waves, triangular waves, modulated waves, etc.</p>  |
| <b>Zero Point Energy</b>         | Zero Point Energy is released from areas where no kinetic energy is present.   |
| <b>Zero Point Energy Pathway</b> | This pathway in an area of high probability for finding Zero Point Energy within a field.  |
| <b>Zero Point Field</b>          | A Zero Point Field in an area where Zero Point Energy exists.  |
| <b>Zero Tolerance</b>            | This connotes an energy field that will only operate within a small range. If out of this narrow range, it will stop functioning and, thus, has a very low or zero tolerance.  |