

# Insufficiency of Cellular Energy (ICE) from the Alternative Cellular Energy (ACE) Pathway Limiting the Specialized Functions of Neuronal Cells

## Abstract

Cellular survival, including the task of maintaining an electrical charge difference between the inside and outside of the cell membrane, depends upon a continuing supply of cellular energy. Additional cellular energy is utilized by cells in performing more specialized functions, which are characteristic of the particular cell type. Neuronal and sensory cells are in particular need for extracellular energy since much of their specialized activity is involved in the repeated electrical depolarization and repolarization of their cell membrane. As originally proposed for certain virus infections, damaged yet viable cells may selectively lose their specialized or "luxury" functions. A selective loss of specialized functions can potentially occur in many illnesses in which there is an insufficiency of cellular energy (ICE) beyond the energy required for cellular survival and subsistence. The effects of ICE are likely to be most pronounced in electrically responsive neuronal and sensory cells. Recent studies indicate that food metabolism is not the only source of cellular energy. An alternative cellular energy (ACE) pathway occurs through the absorption of an environmental force termed KELEA (kinetic energy limiting electrostatic attraction). It provides a dynamic (kinetic) quality to the body's fluids including the apparent loosening of the hydrogen bonding between water molecules. The fluctuating electrical activity of the brain, and possibly muscles, may act as an antenna to attract KELEA from the environment and transfer the energy to the body's water. Moreover, certain clinical observations are consistent with a positive feedback between the ACE pathway within electrically active cells and their capacity to act as an antenna for their own continuing absorption of KELEA. This positive feedback may explain reports of sustained restoration of hearing, eyesight and more complex brain-directed functions achievable in some patients using ACE pathway based therapies. Various modalities of Complementary and Alternative Medicine (CAM), including the consumption of KELEA activated water, can be used to enhance the body's ACE pathway.

**Keywords:** Alternative cellular energy (ACE) pathway; Insufficiency of cellular energy; ICE; Activated water; KELEA; Kinetic energy limiting electrostatic attraction; Enercel; HANSI; Lidocaine; Homeopathy; Enerceutical; Metabolism; Membrane potential; Psychiatry; Stealth adapted viruses

**Abbreviations:** ACE: Alternative Cellular Energy; ICE: Insufficiency of Cellular Energy; KELEA: Kinetic Energy Limiting Electrostatic Attraction; CAM: Complementary and Alternative Medicine; CFS: Chronic Fatigue Syndrome; ATP: Adenosine Triphosphate; ADP: Adenosine Diphosphate; Na<sup>+</sup>: Sodium Ion; K<sup>+</sup>: Potassium Ion; MV: Millivolt; UV: Ultraviolet

## Introduction

The pharmaceutical approach to medicine relies upon chemicals (drugs) to help correct biochemical abnormalities in diseased cells. Progress occurs by more accurately refining the precise biochemical abnormalities within individual patients and by developing new drugs that have improved specificity in their actions. With few exceptions, the prescribed drugs affect the same biochemical pathways in normal cells, as are being targeted in the

diseased cells. Through their actions on non-diseased cells, side effects of pharmaceuticals are essentially inevitable, even if not clinically apparent in every treated patient [1].

Medical education and practice have largely neglected the biophysics of living cells. Unlike biochemical reactions, which require the direct interaction of chemical compounds, biophysical effects occur over an extended range. Many biophysical reactions involve the separation of positive and negative electrical charges. This can be a temporary process, as in the transfer of positively charged nuclei from hydrogen atoms (protons) across the inner lipid membrane of mitochondria [2]. The protons are electrostatically drawn back across the membrane by the remaining surplus of negatively charged electrons. The protons return across the membrane through portals containing the ATP synthase enzyme [3]. Electrically driven rotation of the

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**W John Martin\***

*Institute of Progressive Medicine, USA*

**\*Corresponding author:** W John Martin, Institute of Progressive Medicine, 1634 Spruce Street, South Pasadena CA, USA 91030, Tel: (626) 616-2868; Email: wjohnmartin@ccid.org

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enzyme leads to the synthesis of adenosine triphosphate (ATP) from adenosine diphosphate (ADP) plus phosphate. The energy needed for the initial separation of the protons in mitochondria is derived from the breakage of chemical bonds in food molecules. The formation of the chemical bonds in foods is largely achieved through the reverse conversion of ATP to ADP. A net positive balance of ATP is maintained in Nature by sunlight-driven photosynthesis occurring in plants and in certain bacteria [4].

A more lasting separation of electrical charges occurs in the external membrane of all cells [5]. Protons are in excess of electrons on the outer surface of the cellular membrane with the opposite occurring on the inner surface. The electrical charges are carried by electrolytes, specifically positively charged cations and negatively charged anions. Cross membrane differences in the concentrations of specific cations exist, with sodium ( $\text{Na}^+$ ) being the predominate extracellular cation and potassium ( $\text{K}^+$ ) being predominantly an intracellular cation. The differences in these ionic concentrations is generally attributed to ATP driven  $\text{Na}^+/\text{K}^+$  exchange pumps. Indeed, it is estimated that approximately a third of cellular ATP in many types of cells is required to maintain the cell membrane potential and the differential concentrations of various cations.

The electrical potential difference between the inner and outer surfaces of the cell membrane can be expressed as voltage. It ranges from a low of approximately 10 mV (millivolts) for red blood cells [6] to approximately 90 mV for skeletal muscle [7]; with most cells, including neurons, having a value of approximately 70 mV [8].

Electrical impulses are conducted along nerves through a process of progressive depolarization (actually reverse polarization) of adjacent non-myelinated regions of the cell membrane [9]. Depolarization mainly results from the influx of  $\text{Na}^+$  ions. The  $\text{Na}^+$  ion channels become progressively more porous as the voltage differential between the inner and outer surface of the cell membrane is reduced. This occurs in response to a propagating electrical impulse, although the  $\text{Na}^+$  channel closes upon full depolarization. This closure then allows for the  $\text{Na}^+$  ions that entered the cell to be pumped back out of the cell. Overall, neurons are thought to use an additional one third to a half of their available ATP for repolarization [10, 11]. This requirement may even be higher in oscillating neurons, which are continually depolarizing/ repolarizing.

Membrane depolarization, repolarization and hyperpolarization are also a features of stimulus activated sensory cells, such as those required for the five major senses of sight, hearing, taste, smell and touch [12]. In addition to requiring energy to respond to changes in their membrane potential, sensory cells also need to synthesize and display highly specialized receptor molecules for the particular sensory stimulus. The electrical discharges from the activated sensory cells are conveyed by nerve impulses to the brain for processing and interpretation. Overall these are major cellular energy dependent processes that go beyond the basic energy needs for cellular survival.

### **Alternative Cellular Energy (ACE) Pathway**

Food metabolism is a major source of cellular energy and is mainly provided as ATP and as body heat [13]. In a typical

diet, food provides in the order of approximately two-thousand Calories each day. This is far less than can account for the overall daily expenditure of energy [14]. An alternative cellular energy (ACE) pathway has been proposed [15]. It is believed to result from the absorption by the body of an environmental force termed KELEA (kinetic energy limiting electrostatic attraction). KELEA is reversibly attracted to separated electrical charges. Its fundamental role is presumably to prevent the fusion and possible annihilation of electrostatically attracted opposite electrical charges. When absorbed into water, KELEA loosens the intermolecular hydrogen bonding of the water molecules [16] and probably reversibly contributes to the kinetic activity of the molecules. The ACE pathway is, thereby, an expression of an added dynamic (kinetic) quality of the body's intracellular and extracellular fluids. It can clearly facilitate various metabolic processes and allows for more efficient tissue perfusion. It is very likely to have other functions, including helping to maintain and reestablish normal cellular membrane potential.

As noted above, KELEA is reversibly attracted to separated electrical charges. A proposed function of the fluctuating electrical activity of neurons and muscles, including the heart, is that the electrical charges are acting as an antenna for KELEA absorption and transfer into the body's fluids [17]. In addition, the body can synthesize KELEA attracting dipolar materials, which can take the form of self-assembled particles and fibers [18]. The materials have energetic properties, such as being fluorescent when illuminated with ultraviolet (UV) light, especially in the presence of certain dyes, including neutral red. They are typically electrostatic, occasionally ferromagnetic and can be seen to induce vapor bubbles when suspended in water [19]. The materials are commonly pigmented and are referred to as ACE pigments. They can mediate the cold fusion biosynthesis of lipids and other carbon based molecules [20]. The production of ACE pigments is particularly notable in patients diagnosed as having Morgellon's disease (delusional parasitosis) [21,22]. ACE pigments are also easily detected on the basis of neutral red induced UV fluorescence in herpes simplex virus (HSV), herpes zoster virus (HZV) and human papillomaviruses (HPV) induced skin lesions [23,24].

A third way in which the body can obtain KELEA is from the consumption or administration of KELEA activated water and/or dipolar compounds with KELEA attracting properties [14,25,26]. The term enerceuticals™ was introduced to describe KELEA enhancing compounds. Examples include fresh foods; certain processed foods, such as moringa and ashitaba; various herbs and herbal tinctures; mineral rich products used in farming; some common pharmaceuticals; specific gasses; and other compounds.

### **Insufficiency of Cellular Energy (ICE)**

The body can fail to derive sufficient cellular energy from either the metabolism of food or from the ACE pathway. Common medical conditions, which affect the capacity of the body to utilize food as a source of cellular energy can be broadly categorized as:

- i) Inadequate intake of oxygen as in certain pulmonary diseases, such as chronic obstructive pulmonary disease (COPD);
- ii) Impaired blood supply, as in cardiovascular, cerebrovascular and peripheral vascular diseases;

- iii) Inefficient cellular metabolism, as in diabetes, nutritional deficiencies and possibly some cancers. Metabolically abnormal cancer cells may generate sufficient cellular energy for replication and invasion, but lack the energy required for either full maturation or programmed apoptosis [27]; and
- iv) Increased energy demands as occurs with infections and during wound healing.

As suggested above, the normal fluctuating electrical activity of the brain and possibly muscles may function as antennae to attract KELEA into the body in order to sustain the body's overall ACE pathway [17]. As this process becomes better understood, it may become possible to consciously increase its effectiveness. Conversely, the body's antenna function is likely to be diminished with certain brain illnesses and/or physical inactivity. As suggested above, the ACE pathway is likely to be involved in maintaining the membrane potential of cells and especially in those cells subjected to repeated depolarization/repolarization. Based on this assumption, a deficient ACE pathway can also result in a lowered membrane potential.

A consequence of even mildly reduced membrane potential in neuronal cells is the increased baseline permeability of the Na<sup>+</sup> ion channel [12]. This adds to the continuing energy demands on the cell for Na<sup>+</sup> export. Moreover, the lower baseline membrane potential renders the cells more prone to depolarization in response to inappropriate stimulations. Epilepsy is an obvious manifestation of widespread electrical over-reactivity of the brain [28]. Lesser forms of over-reactivity can lead to hallucinations, delusions, tremors, muscular rigidity, etc. The brain's capacity to respond appropriately to specific stimuli and to sustain clarity of cognitive processes is also hampered by an unduly active and distractive brain.

As noted above, many clinical manifestations of neuropsychiatric illnesses can be explained by an overly excitable brain. Hyper-excitability of sensory cells can similarly explain skin irritability in response to minor stimuli, chemical odor sensitivity and photophobia, as are seen in many psychiatric patients [29]. These symptoms are also common in patients diagnosed with chronic fatigue syndrome (CFS) [30]. This illness is commonly caused by a persisting infection with stealth adapted viruses [31]. These viruses, which are not effectively recognized by the immune system, can still be suppressed via the ACE pathway. While certain CFS symptoms can be attributed to direct virus damage to the brain, many of the additional symptoms may be more reflective of an overall inadequacy of the ACE pathway to maintain normal membrane potential in neuronal and other excitable cells.

A failure of the ACE pathway can also occur in a more localized manner within certain populations of neuronal and/or sensory cells. Because of genetic or other reasons, these cells may initially become prone to hyper-excitation due to the early reduction in their membrane potential. The continuing cellular energy demands on these overactive cells may then lead to the reverse situation, that of the cells becoming unresponsive with restricted neuronal transmission. Indeed, many cases of hearing and some cases of vision loss can best be viewed as localized ICE affecting cells of the cochlear and retina, respectively.

The clinical consequences of a more generalized loss of neuronal activity due to an ACE pathway deficiency may include dementia, amnesia, apathy, depression, disregard for others and the negative symptoms of psychotic illnesses. An intriguing possibility that applies to both localized and more generalized loss of neuronal activity is that reduced depolarization/repolarization may diminish the cells' capacity to act as a KELEA antenna in support of its own ACE pathway requirements. The cells might then enter into a functionally dormant state. Nevertheless, the cells are still viable, even though they are unable to perform their more specialized, intended purpose. Functional recovery of these cells is potentially achievable through ACE pathway based therapies.

### Enhancing the ACE Pathway

A unifying concept explaining the effectiveness of several modalities of CAM is their proposed capacity to enhance the body's ACE pathway through the delivery of KELEA to the body's fluids [32]. This may explain the clinical effectiveness of various medical devices with rapid on-off (charging-discharging) electrical switching. KELEA is presumably drawn from the environment during the on/charging cycle and released during the off/discharging cycle, thereby increasing the local amounts of KELEA. Early examples of such devices include the Beam Ray of Royal Raymond Rife; the Multiple Wave Oscillator of Georges Lakhovsky; and the Papimi machine of Panos Papas [15]. Acupuncture techniques and especially electro - acupuncture, also have the potential of creating and discharging electrical potentials. Certain electrical devices appear to work by propelling opposite electrical charges towards one another, as a means of attracting increased KELEA from the environment. Possible examples include the energy enhancement system (EESystem) of Sandra Rose Michael ([www.eesystem.com](http://www.eesystem.com)) and the bidirectional direct current bifilar coils described by Nikola Tesla [33].

Effective homeopathy can also be equated with KELEA activated fluid [34], rather than with the widely stated "Law of Similars" [35]. This unproven law states that the only treatable symptoms of a homeopathic remedy are those, which are specifically induced when large amounts of the starting materials are inoculated into healthy individuals. Several homeopathic formulations are clearly beneficial for patients with a very diverse range of illnesses, including cancer, infections, cardiovascular disease and neuropsychiatric disorders. The author is familiar with the Argentine product termed HANSI (homeopathic activator of the natural system immune) and with the renamed version called Enercel, available in the United States. He has been involved in successful studies showing the efficacy of Enercel in treating children with tropical diarrhea [36], HIV infected patients [37] and patients with cancer [38]. HANSI and Enercel are labeled as being very highly diluted (homeopathic) herbal and mineral tinctures. Yet the author has tested samples of HANSI and Enercel, intended for parenteral administration, by gas chromatography-mass spectroscopy (GC-MS). The analyses showed that both products contain Lidocaine, a dipolar molecule. The undisclosed presence of Lidocaine is a likely indication that this dipolar compound is believed by the manufacturers to be therapeutically relevant. Lidocaine is chemically related to procaine, which is the major

component in the general health promoting and rejuvenation formulation called Gerovital [39].

Many of the chemical compounds used in CAM therapies are also dipolar and can, thereby, potentially attract KELEA to their separated electrical charges. Presumably with certain compounds, the attracted KELEA is subsequently released, possibly in a rapid oscillatory manner. The enerceutical™ explanation of dipolar compounds and gases also resolves the apparent contradiction of benefits being provided by different compounds, some of which are anti-oxidants, while others are oxidizing.

Various devices and chemical compounds have now been tested for their capacity to increase the volatility and kinetic of water, as measures of KELEA activation of the water [40-43]. The data support the above premise that separated electrical charges, created by different devices and naturally present on dipolar compounds, can attract KELEA and transfer the energy into water. Additional observations also support the proposal that once water is sufficiently activated, it is able to directly attract KELEA from the environment. Thus it can transfer energy to the added water used for dilutions in homeopathy. Successive dilutions will reduce the residual amounts of activating tinctures and other chemicals below detectable levels. Alternatively, soluble activating compounds can be removed from activated water by zero-residue filtration, while insoluble materials can be removed by simple decanting. Activating gases, such as Brown's gas [44], hydrogen, ozone and chlorine dioxide will largely dissipate from the KELEA activated water.

Certain other water activating devices do not require an external electrical energy source. One approach is to simply use electrically connected dissimilar metal plates, for example silver and magnesium, placed into ionized water. An imbalance of electrical charges repeatedly develops between the two plates, which discharges because of the electrical connection between the plates. The use of dissimilar metals is similar to the approach used by Dr. Keshe in which he uses oxidized copper and regular zinc plates to produce what he terms GaNS "gas in a nano state" ([www.keshfoundation.org](http://www.keshfoundation.org)). It is also comparable to the use of dissimilar metals exposed to humid air, as used by Dr. Wilhelm Mohorn in the Aquapol device ([www.aquapol-usa.com](http://www.aquapol-usa.com)). This device can reverse the upward flow of water in the foundation walls of buildings. Wilhelm Reich promoted the use of multiple layers of alternating conducting and insulating materials in creating energy chambers ([www.orgonelab.com](http://www.orgonelab.com)). Presumably, the conducting and insulating materials acquire different charges that are subject to periodic discharging. Variations on the Keshe, Mohorn and Reich devices have been personally shown to activate water [40,41]. Other devices which do not depend upon an external energy source but have yet to be personally tested include pyramids, crystals and externally placed dipolar compounds.

In principle, therapy using KELEA activated water has advantages over having to directly treat patients with medical devices. These devices do, however, offer a relatively simple approach to instilling KELEA into water, without the need for added chemicals. As stated above, if chemical compounds are added to the water, they can be removed following activation of the water. Drinking activated water is preferable to having injections, as currently being practiced with several homeopathic products. KELEA activated water can also be used for bathing.

On the assumption that neuronal and probably muscle cells can act as antennae to bring KELEA into the body, the long term therapeutic goal is for patients to better understand this process. It is reasonable to propose that consuming KELEA activated water may secondarily increase the KELEA antenna function of the brain, leading to a more sustainable clinical recovery of ICE associated diseases. Medical illnesses attributed to localized ICE, which is affecting a particular cell population may initially be more effectively treated by applying KELEA activated fluid directly to the affected areas.

### Clinical Benefits

The goal of this paper is to outline a rational basis for clinical findings of improved brain function and restored neurosensory functions in patients undergoing various energy based therapies. While efforts are underway to more fully document patient examples of clinical improvements, there are many examples of patients with varying clinical disorders who have successfully responded to various CAM treatment modalities. One example is improved hearing after years of dependency on hearing aids. The testimony of the patient following electro-acupuncture treatment and HANSI injection administered by a CAM practitioner stated: "I am 88 years old and have worn 2 hearing aids for more than 25 years and have not had a sense of taste or smell for many years. I have not used my 2 hearing aids since my first treatment in September. When I arrived in your office I could not hear you speak for 3 feet away (without hearing aids) and after the first treatment I was able to hear you at 20 feet away. I no longer need them even in Church. I have not used my old hearing aids since my first treatment and I have even returned the new aids I had just purchased." The patient further commented "I found out that I was not a very good cook when my taste and smell came back and I found my home cooking was not nearly as good as restaurant food".

Another patient had lost all hearing in his left ear at age 15 from being struck with a heavy piece of wood during a fight. He also had a left sided severe head injury from a motorcycle accident at age 20, with amnesia for many childhood events. At 59, he joined his wife as she was being treated with the EESystem. Previously when his wife was driving the car, he would only hear her voice as it bounced off the passenger side window. After several therapy sessions, he began to also hear her voice in his left ear. Indeed, he now hears nearly equally well in both ears. Moreover, many childhood memories and other childhood skills have returned.

A 62-year old patient had lost eyesight in his right eye at age 12 from trauma and had been told that the retina was destroyed. The vision in his left eye was also sub-optimal and the eyes were not well aligned (strabismus). The patient spent several hours in a room energized by the EESystem. He recalls experiencing visual sensations in his right eye during the therapy and also later that evening while in bed. When he awoke next morning, he could see clearly with both eyes. Moreover, he felt his eyes moving in a far better coordinated manner than previously. The patient recorded a testimonial 60 days after regaining bilateral vision and also referred to other improvements in his sleeping, energy levels and work performance.

Daily epileptic seizures in a 4-year old autistic child were occurring in spite of anti-seizure medications. On several

occasions, he had to be hospitalized because of delayed recovery of motor function. He was treated with 5 daily ACE phototherapy sessions using neutral red dye in KELEA activated fluid. Since then his seizures have forever ceased and the anti-epilepsy medications has been discontinued [45]. He also showed marked behavioral improvements and began speaking.

The author has also been informed by CAM practitioners of occasional rapid improvements in patients with Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis and bipolar psychosis treated using various therapeutic modalities consistent with enhancing of the body's ACE pathway. The benefits have been quite variable and unpredictable in individual patients even with similar illnesses. This may reflect differences in the effectiveness of the applied energy based therapeutic procedure in providing sufficient KELEA to the individual patients to achieve a self-sustaining level of ACE pathway activation. It is also possible with adult patients that the procedure was simply providing a trigger for resetting the intrinsic KELEA absorbing capacity of the body; achieving what might otherwise be called the placebo effect [46,47]. Still the rapid recoveries in several patients is indicative that their neuronal and sensory cells have remained viable, but presumably because of ICE were not functionally active. For educational purposes, cells that have reverted to a survival mode without sufficient energy to engage in their intended specialized functions are being termed "ICE cells".

## Conclusion

This article draws the distinction between the basic requirements of cellular energy for long term cellular survival and the added energy requirements for more differentiated cellular activities. It is proposed that under conditions of an insufficiency of cellular energy (ICE), previously well differentiated cells may continue to survive, but essentially exist in a functionally underperforming capacity. Normal cellular function can potentially be restored to these cells by the provision of additional cellular energy. This basic concept has been further elaborated by the distinction of cellular energy that is derived from food metabolism and from the alternative cellular energy (ACE) pathway. The ACE pathway is expressed as a dynamic (kinetic) property of the body's intracellular and extracellular fluids. It is acquired by the body through the absorption of an environmental force termed KELEA (kinetic energy limiting electrostatic attraction). The fluctuating electrical activity of the brain and possibly muscles may normally act as an antenna for much of the body's supply of KELEA. Cells which undergo repeated depolarization/repolarization are especially energy dependent and are probably particularly susceptible to ICE from the ACE pathway. Included are neurons, muscles and sensory cells. Reduced membrane potential can initially lead to inappropriate activation of the cells and later to the loss of the cells' specialized functions. Methods aimed at enhancing the ACE pathway, including the consumption of KELEA activated water, may prove to be particularly useful therapies for many brain diseases and also for specific impairments in hearing and in vision. The goal of the therapies is to restore normal cellular activity, including the capacity of the treated individuals to maintain an optimal ACE pathway.

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