

Active hydrogen – the fuel of life (Part 1)

Liquid crystal colloids – a fountain of rejuvenation

Hydride microclusters: the world's most powerful
antioxidant and activator of our cellular power plants

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Chapter A

Liquid crystal colloids – a fountain of rejuvenation



1. The dream of eternal life

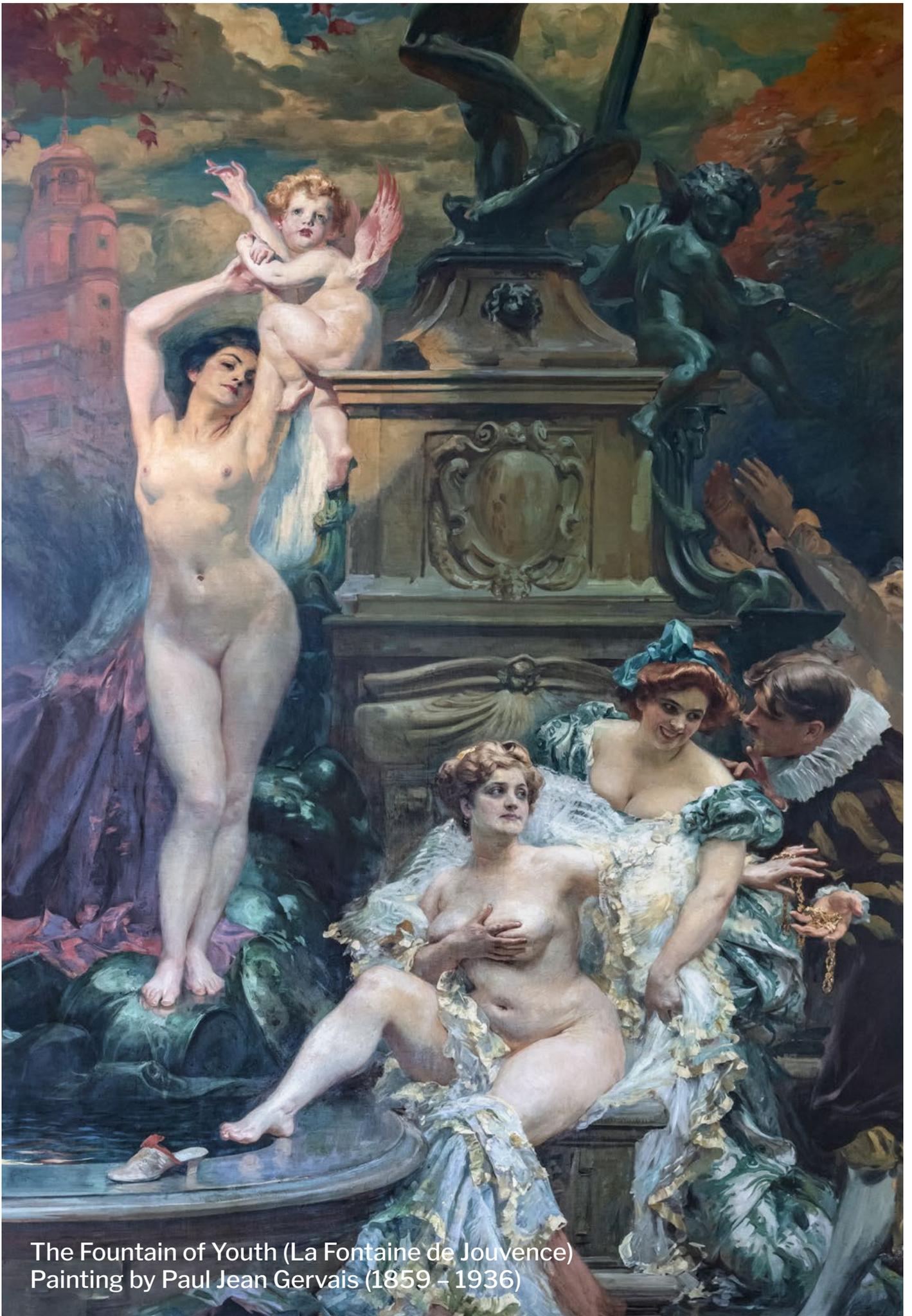
The search for the “fountain of youth” or “fountain of rejuvenation” is probably as old as the history of mankind itself. In countless myths, fairy tales and traditions, alchemists searched for an elixir of life to achieve immortality. Since the beginning of the last century, numerous high-ranking scientists and researchers have also been dealing with the subject of longevity and its causes.

Dr. Alexis Carrel was awarded the Nobel Prize in 1912 for his research on this subject. In a series of experiments, he succeeded in keeping the cells of a chicken heart alive for 34 years by ensuring that two important conditions were met: perfect cell nutrition and perfect removal of waste products or toxins from cell metabolism. Dr. Carrel thus proved that aging, degeneration and death of cells and tissues are not inevitable and fateful, but can be directly influenced by us if cells are optimally nourished, but also optimally detoxified. This applies not only to the detoxification of the degradation products resulting from metabolic processes, but also to the numerous toxins that we absorb from the environment every day: through breathing, eating and drinking. The same applies to the living cells of our body as to the test cultures studied by Dr. Carrel: with good nutrition and efficient detoxification, the life span of cells can be multiplied.

One of the well-known researchers on the trail of longevity was physicist Dr. Henri Marie Coanda, an aviation pioneer and water expert who became known primarily as the “father of fluid dynamics.” In more than 60 years of research, Dr. Coanda found five isolated areas around the world, mostly in mountainous regions, where people lived exceptionally long lives and were healthy into old age. These five regions studied, such as the Urubamba Valley in Peru or the Hunza Valley in Pakistan, offered people different living conditions, but all drank

water that had special, consistent characteristics found only in glacial regions. Researchers believed that the longevity of some of these mountain peoples, including the Hunza of Kashmir, must be hidden in their special water quality. Dr. Coanda was even able to set in a mathematical formula the average life expectancy of the peoples in relation to the freezing points of the individual glacier waters. Modifying the saying “You are what you eat,” he coined the phrase “You are what you drink.” This also seems to make sense, because our body consists mainly of water.

In France in the 1960s, Dr. Louis-Claude Vincent also established a connection between water quality and life expectancy with the help of his bioelectronic measurements. On behalf of the French government, he examined the water in various French cities in terms of pH (potentium hydrogenii), rH or rH₂ (relative hydrogen) and conductivity or mineral content. Electron abundance is measured by the oxidation-reduction factor, or rH₂: The more oxidized a water or food is (rH₂ > 28), the more it depletes the body by using up its electrons. The place with the highest life expectancy in Dr. Vincent’s time was in the middle of the country in the Auvergne-Rhône-Alpes region and is named after the Puy de Dôme volcano in the Massif Central. This is where the famous Volvic mineral water comes from, which was still of very good quality, at least in Dr. Vincent’s time.



The Fountain of Youth (La Fontaine de Jouvence)
Painting by Paul Jean Gervais (1859 - 1936)



Hunza Valley in Pakistan's Karakoram Mountains.



There is a high proportion of vital seniors over the age of 100.

2. Mystery of the Hunza Water

The Hunza Valley resembles a fairy-tale setting in a remote high valley surrounded by snow-capped peaks of the Himalayan massif. Neither plants, animals nor people really got sick there. Cancer, cardiovascular diseases, metabolic problems or any other civilisatory diseases common to us were completely unknown to the Hunza.

Only the successor of the then 85-year-old Dr. Coanda, the young American scientist Dr. Patrick Flanagan, who received Coanda's research work from him, finally made the breakthrough after another 30 years of research. Flanagan, who already at the age of 17 was named as a "Wunderkind" in LIFE Magazine from Sept. 1962, succeeded in finding out why these peoples had such a high proportion of people over 100 years old or even 110 and 120 years old. They enjoyed a good health, an excellent physical condition and were able to produce offspring until old age. The Hunza themselves were firmly convinced that this was due to their "glacier milk", which they drank, the turbid water from falling streams of the high mountains.

3. Living water differs from ordinary water



17-year-old Patrick Flanagan receives from Dr. Henri Marie Coanda his research on Hunza water and longevity peoples.



Seventeen-year-old Patrick Flanagan is turning the scientific world upside down, according to the 1962 LIFE magazine cover article highlighting him as one of the 100 leaders of the future America.

Today it is known that Hunza water has specific physical properties that actually distinguish it from ordinary water. The glacier water contains hardly any mineral salts, has a low surface tension, a higher viscosity and a high content of free energy due to tiny mineral particles, the microcolloidal silica crystals. These so-called microclusters, based on colloidal silica, are only about 5 nanometers or 50 angstroms small, i.e. about 2000 times smaller than a red blood cell, and they are able to bind active hydrogen to themselves.

Microclusters in this size exhibit quite extraordinary properties and have an enormously large surface area due to their smallness and summing up countless trillions of microclusters (as in 1 capsule of Active H[®] from dr reinwald vital). This is crucial because it is the surface area of a molecule that interacts with its environment. The smaller the particles, the relatively larger the surface area and the better the reaction possibilities of the particle with its environment. In this case, the smaller the microclusters, the more active hydrogen can be bound to this carrier system.

Active hydrogen, i.e. H⁻ or hydride ion, is a sensation in nature. Not every scholar in chemistry is able to imagine that such an “impossible” substance can be reality. We know hydrogen (H) as the smallest element with one proton H⁺ (plus-charged) and one electron e⁻ (minus-charged). Elemental hydrogen is relatively stable due to plus-minus attraction. However, H⁻, or hydride, means that a normal H atom has an extra electron attached and thus must balance a proton with two electrons. Since this construct is very unstable and inclined to give up its extra electron immediately, a hydride is very short-lived in nature under the influence of oxygen, unless it can be stabilized in a special silicon mineral complex, as in glacier water. Due to their abundant content of hydride ions (minus-charged hydrogen ions), these mineral particles have a high negative electric charge potential, which is technically called “zeta potential”.

Active, minus-charged hydrogen also occurs in well-known healing waters, which are said to have miraculous healing and rejuvenating properties, such as in the spring of Lourdes or the Ganges water. In all traditions, the mystical „image of the fountain of youth“ stands for a spring with these special properties, which physics today would describe with a high charge potential of the liquid colloids and an order structure of the water created by this. What significance and what effect does this have on the health and longevity of humans, animals and plants?

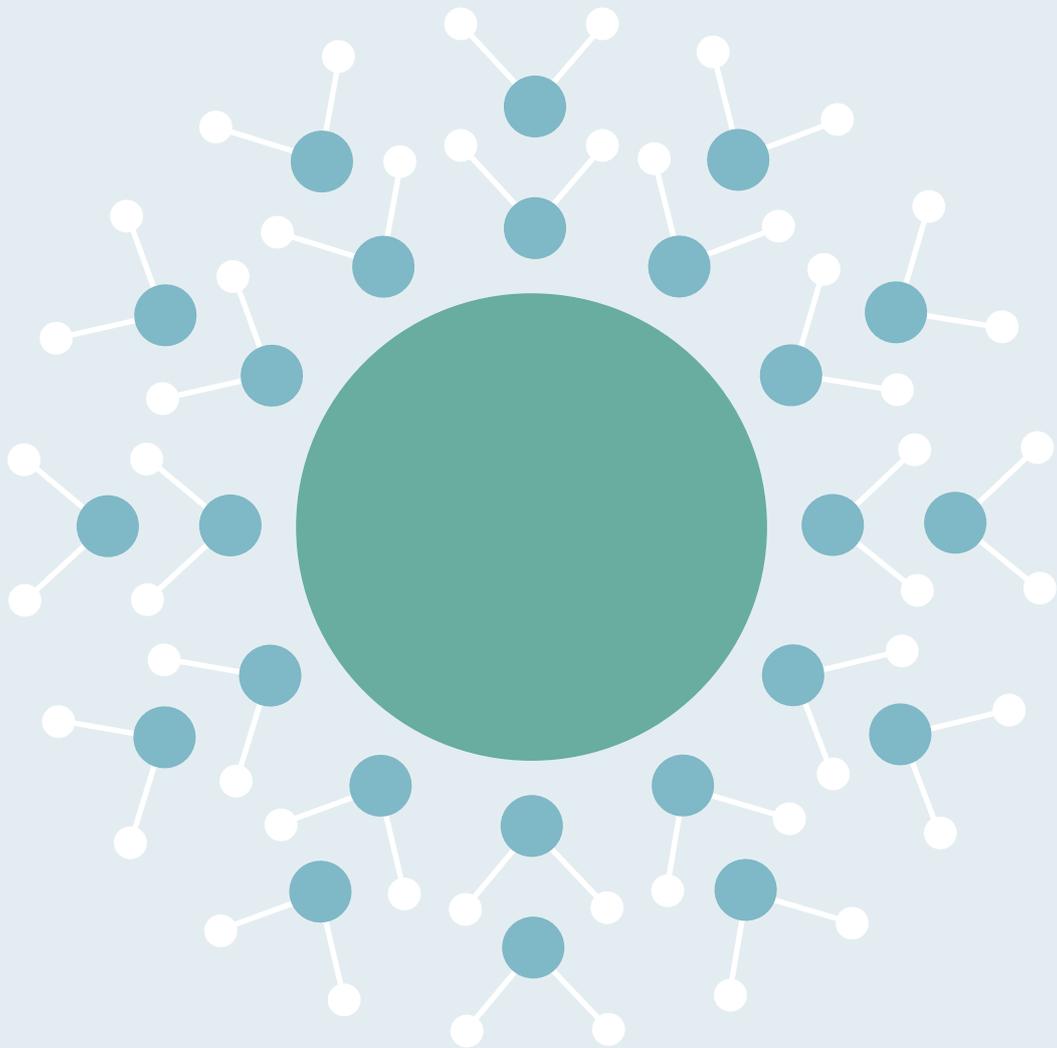
Cellular water, as it occurs in the human body, but also in fresh fruit or vegetables, is also highly structured, i.e. it contains many information-charged liquid crystal structures and significantly less parts of disordered water. We are beings of colloidal water and the more highly structured and informed and thus ordered our tissue water is, i.e. the more liquid colloids it contains that bring about this order, the better our metabolic processes function.

4. The degree of order and structure improve the bioavailability and information content of liquids

By adding microclusters as crystallization points, water molecules are arranged in a star shape around the mineral colloids. High-energy liquid crystals are created. This means that the strong mutual forces of attraction of the water molecules (hydrogen bonds) are largely abandoned. This makes the water softer and the surface tension decreases, from originally 73 dynes or mNm/cm (milli-Newton-meter of normal tap water) to up to 45 – 40 dynes. A softer, more flexible water is, so to speak, “more liquid” than a hard water that has solidified due to its molecular lattice structure. The “liquefaction” increases the energy status and revitalizes the water. It also has a decisive impact on the actual utilization, i.e. the bioavailability of the water drunk in the organism. Humans themselves are a large liquid colloid system that is very similar to a microcluster-rich water. The surface tension of our cell water is approx. 45 dyn. In order to adapt normal liquids we drink to this level of 45 dyn, our body generally has to expend a lot of energy. Often not all of the water we drink can be used successfully. The actual resorption rate is only around 60%. Water energized with colloidal microclusters is therefore almost immediately and completely available to the organism for its tasks such as cell irrigation and rinsing, transport of nutrients and removal of metabolic waste.

Not only are nutrients transported to the cells by the tissue water, but also information. Water has a “memory”. A lot of impressions and experiences are stored in its internal structures, which the respective water has collected in the form of vibrations as frequency patterns – the positive as well as the negative ones – on its “personal path of life”. Masuro Emoto’s water crystal research shows impressively how posi-

Structuring and ordering of water



Microclusters can act as crystallization points to arrange the polar water molecules in a star shape around the mineral colloid. The oxygen atom is directed inward with plus charge. In this way, a liquid colloid is formed. The more such liquid colloids are contained in drinking water, the higher its degree of order and the more similar the drinking water is to our cellular water and the better the direct usability of the drunk liquid as well as its function for the metabolism.

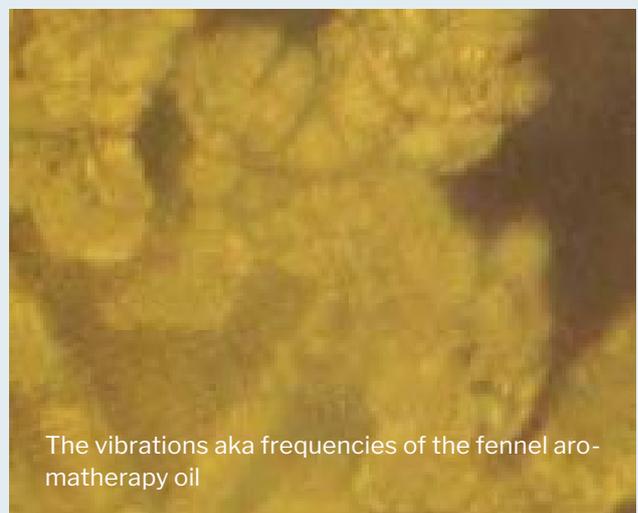
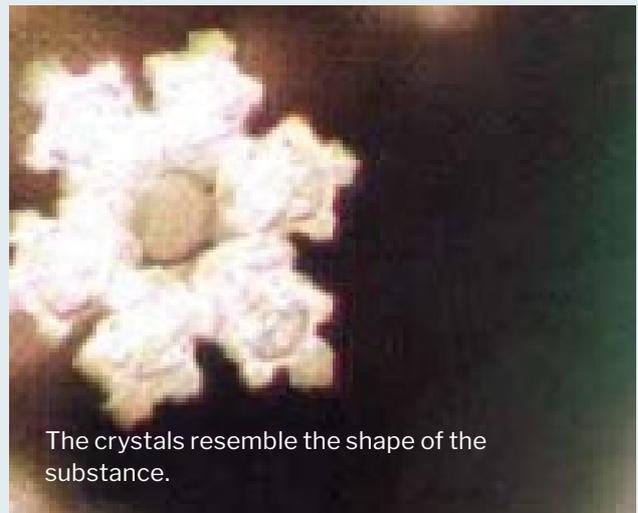
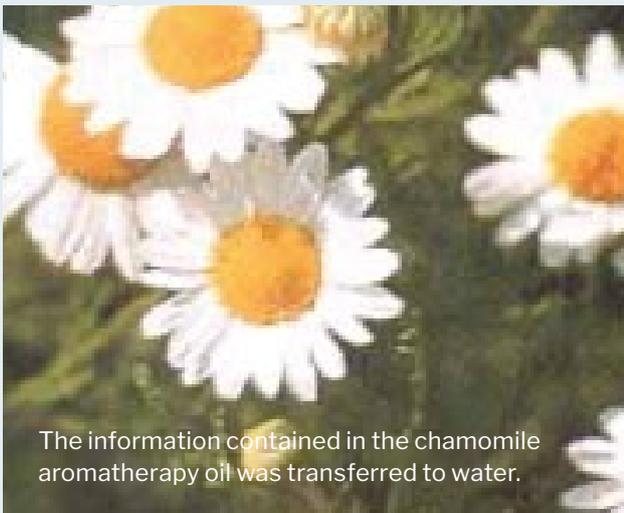
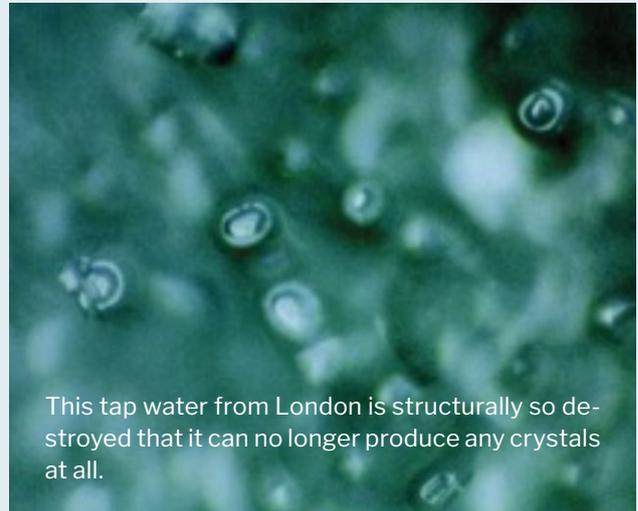
tive information can produce beautiful and harmonious water crystals. However, negative, disharmonious or destructive experiences lead to mutilated structures or can even prevent crystallization. These information properties can be

transmitted through contact and mixing with tissue water. The harmonious rearrangement and structuring by colloidal microclusters can overwrite bad information stored in water.

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Excursus: The Japanese water researcher Masuru Emoto has been able to make the information of water visible through a special crystallization process.

Here are his pictures of different tap water:



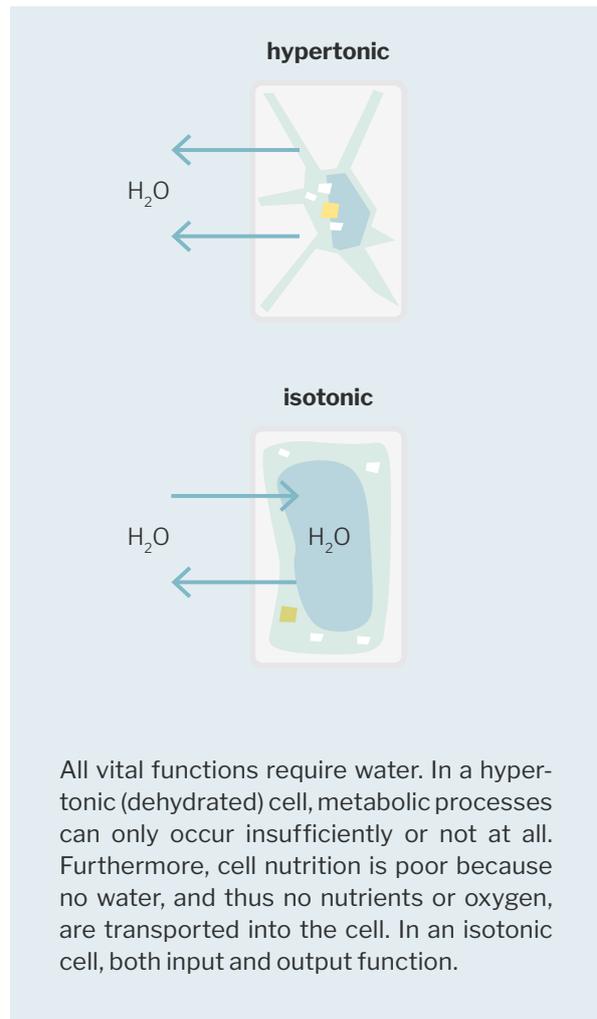
5. Hydration: irrigation of the body tissues is the first preventive health care

Cell irrigation is one of the most critical factors for the health and longevity of our cells and therefore our entire body. Dehydration is one of the main causes of numerous illnesses and signs of aging. The Persian doctor Dr. Batmanghelidj attributes a large part of the diseases to metabolic and organ dysfunction caused by a lack of water. When cells become dehydrated, a catabolic, degeneration process is triggered, which is accompanied by muscle wasting, oxygen deficiency, hyperacidity, DNA damage, cell degradation up to the point of degeneracy and accelerated aging. Conversely, all symptoms of aging are characterized in one way or another by slow dehydration of our living tissues, accompanied by oxidative damage from free radicals and a lack of protein. The decrease in the average body water content becomes clear with age: infants 75%, children 60%, adults 60 – 50%, seniors 50 – 40%.

Then there is the phenomenon of “feeling thirsty”: Dr. med. Batmanghelidj described the usual feeling of thirst – the dry mouth – not as the first, but the last alarm signal of the body. So we should always drink enough so that we never feel thirsty. However, our feelings can be deceptive: the natural feeling of thirst diminishes as the body water decreases. That is a fatal state. Thus, it is important to break this vicious circle. People who drink water rich in microclusters often notice a significant increase in thirst and an increased urge to urinate very quickly: the irrigation and flushing of the body’s cells and thus the excretion of toxins and other undesirable substances has normalized through water energization and structuring.

6. Improved cellular metabolism means increased nutrient absorption and easier excretion of metabolic waste

The cell membrane consists of a double lipid layer that separates ions in the extracellular space from ions and charged proteins in the cytoplasm. Pure lipid membranes are excellent electrical insulators. However, real cell membranes consist of a dense mosaic of proteins and lipids. Many of these proteins span the membrane and act as channels that allow charged molecules to pass. These proteins reduce the otherwise high resistance of the membrane, which has significant consequences for electrophysiology. The current required to maintain the mem-



brane voltage is determined by the membrane resistance, according to Ohm's Law: Voltage = Resistance * Current.

The higher the membrane resistance, the lower the current required to maintain a given membrane voltage. Because the membrane is an electrical insulator separating opposing charges inside and outside the cell, the cell membrane not only has a resistance but also a membrane capacitance. Therefore, to change the membrane voltage, it is necessary to charge the capacitance. For a given amount of applied charge, the smaller the membrane capacitance, the larger the membrane voltage change.

Charge potential of the cells promotes bioelectricity between our cells via membrane resistance and capacitance, thus improved cell metabolism means increased nutrient absorption and easier elimination of metabolic waste. An optimized metabolism via a sufficient charged membrane potential can increase the absorption of nutrients that otherwise could not have been utilized due to poor transport. This also applies to disposal performance. The essential mechanisms for this, all of which are related to our Body Electric, are:

1. Surface voltage / charge / capacitive resistance: influence on availability
2. Bi-polar wetting: influence on emulsification
3. Capillarity: Influence on the adhesive force or the suction pressure

1. Surface tension / charge / membrane capacitance – availability:

As addressed earlier, the use of microclusters as crystallization points reduces the relatively hard surface tension of conventional water to

approximately the consistency of our organic cell water. This reduction of the adhesive force in water can also be achieved by a strong organism itself through appropriate energy expenditure which is necessary in order to establish bioavailability. If this is not achieved, a person can drink gallons of water and still become dehydrated.

The aim is to make the ingested water osmotically available (amount of absorption) to the organism, cell wall permeable and thus a suitable means of transport for nutrients into the cells as well as metabolic toxins out of the cell. Nutrients can only be dissolved in water that has a lower surface tension than they do. Research has shown that normally only about 30 – 40% of the nutrients we take in through food or supplements can actually be absorbed by the body. The rest, i.e. the majority, does not reach the cells but is excreted unused. Similarly, toxins often cannot be sufficiently dissolved and removed and remain in the cells, so that over the years pollutant depots accumulate as so-called "slags" aka waste products in the body.

By breaking the hydrogen bond bridging structure, the individual water molecules become again more mobile and cell-wall permeable. They receive again a molecular polarity (charge distribution), which is essential for a better osmolarity in the metabolic process.

2. Bi-polar wetting – emulsification:

However, there are two fundamentally different forms of nutrients: Fat-soluble/lipophilic and water-soluble/hydrophilic nutrients. The addition of hydride microclusters to drinking water results in polytropic hydrides, i.e. multiform hydrogen clusters that combine both hydrophilic (polar) and lipophilic (nonpolar) elements in their mineral structure. Due to the high minus charge on their surface, the liquid crystals act like electrical magnets for water molecules, as well as for fats. Since they are polytropic and bipolar,

the liquid colloids produced by adding micro-clusters to drinking water can wet and bind both fat- and water-soluble substances. They act as extremely effective transport vehicles and, due to their nano size, are able to travel anywhere in the body to deliver nutrients and absorb waste.

Lipophilicity or fat affinity plays a special role in the nutritive supply or detoxification of cells, especially in permeating the cell membranes (bioavailability), which are largely composed of water-repellent lipids. The effectiveness of the lipid emulsifying powers of the Hydride Micro-cluster Concentrate can be tested for yourself by putting ordinary water in a well-sealed container and a layer of cooking oil on top. If you shake the whole thing, water and oil remain clearly separated. If hydride microcluster powder is added, the two layers begin to combine and mix.

Only through good wetting can the cells be flushed and supplied with nutrients, oxygen, or the toxins and metabolic waste products be disposed of. One of the most important nutrients that must reach all cells is, of course, oxygen. Even the alveoli “swim” in water. Only when they are sufficiently moistened can they take in oxygen when inhaling and release carbon dioxide when exhaling.

3. Capillarity – adhesion force or suction pressure:

Capillary rise or capillarity is a phenomenon in which liquid spontaneously rises or falls in a narrow space such as a thin tube or in the voids of a porous material. Surface tension is an important factor in the phenomenon of capillarity. The surface adhesion forces or internal cohesion present at the interface between a liquid and a solid stretch the liquid and form a curved surface called a meniscus. Due to the „liquefaction“ (viscosity) of the aqueous medium and the better absorption into the body cells, adhesion force or the suction pressure in the capillaries or conducting vessels increases, just as water only

flows in our water pipe when we turn on the tap. For our body, this means better blood flow to the capillaries, the microscopic, fine veins and pipes that supply the body’s most sensitive tissues. In the brain, good capillary function ensures increased mental performance, in the area of the eyes for better vision or in the alveoli for a dedicated oxygen-carbon dioxide exchange..

7. The cells are based on an electrical circuit: optimized charge promotes cell communication and exchange between cell plasma, cell membrane and environment

The order and structuring of our body fluid by enriching it with ions (charged particles) and electrons improves the communication of the body cells and their energy status via a higher conductivity. Every body cell in us has its membrane resistance, the electrically minus-charged zeta potential. With its help, the cell maintains the exchange of charged substances (ions) through the cell membrane. Millions of individual processes take place in a meaningful, harmonious cooperation of all cells through the transmission of information and stimuli from electrons.

Nowhere is there direct contact between the cells and the capillaries, lymphatic vessels or nerve fibers. Every nutrient transport, every metabolic process, but also every stimulus transmission (i.e. cell communication) takes place via the tissue water in the interstitium. In addition to chemical stimulus transmission (hormones), there is also electrical signal and information transmission in our body - mostly where rapid excitation conduction is required. In our heart muscle cells, for example, electrical impulses synchronize the contraction of the muscles. If this conduction were to fail, the heart would immediately stop beating, for example. Our brain also processes its functions via fast electrical impulses. Minus-charged, active hydrogen with

its ability to hexagonally structure water can supply the body's transport fluids with minus-charged hydrogen ions and thus provide the electrons required for improved conductivity.

Excursus

Dr. Fritz Albert Popp has shown that our cells transmit DNA codes by emitting ultraviolet laser beams. He has also shown that the mechanism of light transmission comes about through structured water molecules. These act as „light guides“ for the signals. Popp points out that these structured water molecules are arranged by colloidal minerals. The higher the electrical zeta potential at the surface of the liquid colloid, the more effective it is as an energy source.

Our body cells are like small batteries. A vital, healthy organism can only maintain its functions such as cell metabolism and rejuvenation through cell division via the bioelectricity on its cell membranes. The zeta potential of all colloids in the living system has a negative charge (polarity). Positively charged pollutants such as heavy metals and other environmental toxins or ROS (reactive oxygen species) stress our healthy bioelectricity. With increasing slugging through aging, overloading, wasting or malnutrition, this “elasticity” (zeta potential) decreases.

Thus, the polarity and charging is vital for us: When particles (or cells) have little or no electrical charge, they clump together. The stability of cells in our body is based on the fact that they are minus-charged and repel each other. In the case of red blood cells, we speak of the “money roll effect” or “blood clotting” when they stick together. In clustered cells, the cells inside can neither be supplied with sufficient energy or oxygen, nor can they in turn perform tasks such as transporting nutrients or cellular toxins. When we administer microcluster colloids to

people with such clumped blood as can be seen, for example, under the dark-field microscope, we have observed that the red blood cells have separated from each other again shortly thereafter and the blood flow properties (rheology) improve rapidly.

Most waste or toxins as well as sick or dead cells are positively charged and also acidic and thus contribute to an over-acidic body environment. The negatively charged hydrogen liquid colloids can attract these substances like a magnet. With their effective removal, the microclusters improve the body environment or bioterrain by regulating the acid-base balance. Energy-rich water as well as active, minus-charged hydrogen ions can literally help to recharge the cells, to restructure them, i.e. to organize them, and thereby to stimulate and support the cell functions. Protein synthesis, membrane transport and ATP formation are promoted by this increase in the degree of order of water, its increased entropy. These are all factors with vital importance for regeneration and renewal of the tissue, factors for sustainable vitality.

8. Active hydrogen as a food supplement according to nature's recipe

Thanks to the research and findings of Dr. Patrick Flanagan, it is now possible to replicate Hunza water and even far surpass it. The problem with replicating nature was primarily the stabilization of the hydride ion (H⁻) or the volatility and reactivity of the electron loosely attached to the hydrogen atom. In order to maintain its special abilities, which we would like to transport into our body, the challenge is to stabilize the hydride ion in such a way that it does not react prematurely. In fresh fruits or vegetables we can already observe this problem when cutting with a metal blade. Even when using a ceramic blade, oxidation has occurred

Red blood cells with blood clotting and after the administration of microclusters



at the latest after 15 minutes of contact with air (oxygen). The same occurs when pressing fresh juices or when fresh spring water is left standing.

With the unique mineral particles of Hunza water, the so-called microclusters, nature has revealed to us the model, indeed the recipe. Dr. Patrick Flanagan has succeeded in replicating these microclusters, stabilizing them in microcolloidal silica crystals, and producing them

concentrated in capsules as a dietary supplement. It is available today as a Colloidal Silicon Microcluster Mineral Complex from Patrick Flanagan's successor, Dr. Reinwald, in two different forms of administration: as Active H[®] day with potassium and Active H[®] night with magnesium.

By consuming Active H[®] directly or adding it to drinking water, we have the opportunity to

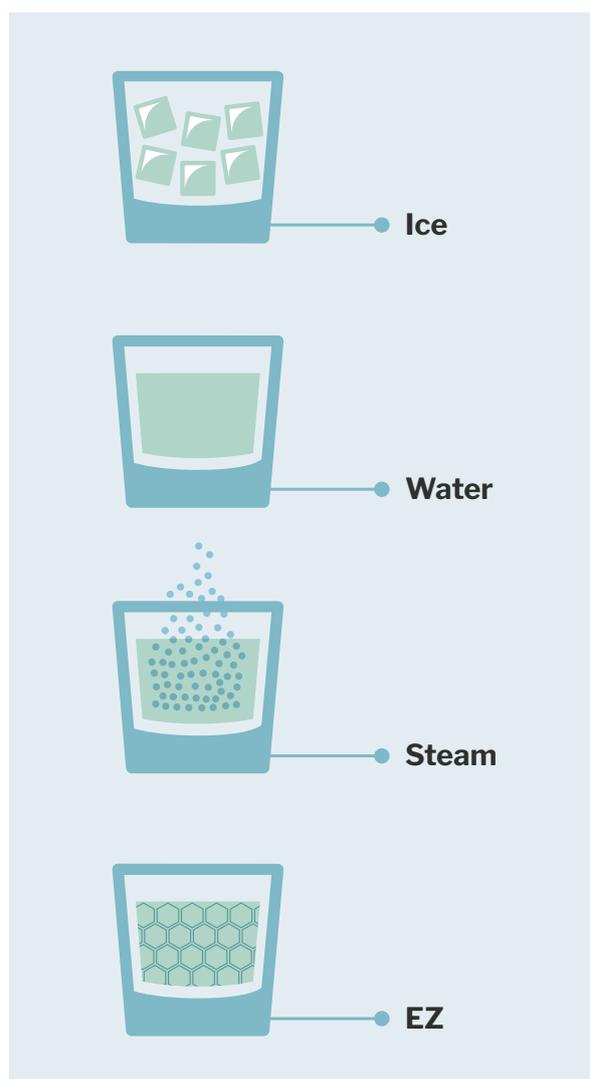
infuse our drinking water and other liquids with the properties of Hunza water. We can restructure and energize our drinking liquids by forming active-hydrogen liquid crystals. When we drink and absorb water with a high degree of order, we also support the order of all liquids in our organism, to which this structure and information can be transferred.

You will agree that we can add to Dr. Coanda's statement "You are what you drink" in accordance with the Prussian Royal Physician Christoph Wilhelm von Hufeland (1762 - 1836) in "You are what you absorb".

9. Current research

Today we know more. If you look at more recent research on the subject of water, you can hardly escape amazement, and much of what those pioneers told us more than 50 years ago is confirmed by current research. And yet: The physicist and water researcher Wilfried Hacheney states it clearly: *"An honest scientist would have to admit that he does not know what water is. It cannot be explained either physically or by the chemical means of mainstream science. It does not follow any of their laws. Water is a scientific impossibility."*

Together with Russian scientists, Gerhard A. Pollack, Professor of Biomedical Engineering at the University of Washington, has recently been able to unravel one of these inexplicable mysteries about water in his research laboratory, to which the early research of Dr. Carell, Dr. Coanda and Dr. Flanagan had already pointed. In addition to the various states of order of water hitherto known - solid, liquid, gaseous - they discovered a fourth state of order which can explain not only many of the previous anomalies, but also the effect of energized water. In this fourth state, which Pollack calls the "Exclusive Zone" (EZ), water seems to behave in an almost mysterious



way. The molecules of liquid water suddenly begin to arrange themselves in a hexagonal crystal lattice - a sixfold lattice or double helix like the geometric structure of honeycombs.

Upon closer examination of Exclusive Zone or hexagonal water, the puzzled scientists discovered that it is a type of liquid ice, a previously undiscovered intermediate form between liquid and frozen states. Accordingly, water undergoes this high degree of order whenever it freezes or when ice melts. This is exactly what Dr. Coanda and Dr. Flanagan already suspected in the 1960s in glacier water and its high hydride ion charge of Hunza. However, it not only forms in this zone as more stable and more ordered, but also seems to purify itself in a certain way. Even more: it shows

completely different properties than in the three other states of order of water. These include, for example, the aforementioned altered viscosity (flow property), as also produced by hydride ions, as well as a pronounced ability to absorb infrared light. When light was withdrawn from water, hexagonal EZ water could not form. This was different when irradiated with sunlight. Here the degree of order expanded threefold and the water was even able to store the sunlight as honeycomb-shaped, hexagonal crystal lattices - it was physically “energized”. These explanations give you a faint idea of why sunbathing feels so good when you enjoy it in moderation. Our body water is virtually charged with the energy of the sun and hexagonally “structured” - not to mention the vitamin D formation.



The fourth state of water:
hexagonal structure

In Pollack’s book “The Fourth Phase of Water: Beyond Solid, Liquid, and Vapor” from 2013, he emphasizes above all the health significance of a high EZ water content for living organisms. Like Dr. Coanda and Dr. Flanagan before him, he points out that hexagonal water is mainly found in clean glacial springs, in waters from deep springs or in swirling water, as the famous Austrian water researcher Viktor Schauberger also emphasized again and again as early as in the first decades of the 20th Century. In his book Pollack writes:

“We now know that most macromolecules would break down and fail without the EZ water - they could not function properly. Now, many diseases are based on dysfunctions of proteins or their regulatory systems. In such a protein-centered network, dysfunction can arise from two components: the protein itself or the EZ water that coats the protein.”

But Pollack and his colleagues discovered even more: The highly ordered and energy-rich hexagonal EZ water not only had the ability to store sunlight, but also an altered electrical resistance, an altered pH value and a clearly negative charge. The potential difference between EZ water and normal water was so high that it could be harnessed electrically and function like a small battery. Negatively charged energy from sunlight. What does this mean when water or a nutrient substance has a minus charged (anion) energy with the help of hydride ions? It has a higher binding capacity to plus charged (cation) substances such as harmful substances and contributes to their elimination as we already mentioned above.

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These things have obviously always been known to the implicit knowledge of our ancestors, which is why in the Mediterranean they also drizzle plenty of antioxidant substances on foods to keep their order structure fresher for longer. An avocado with lemon stays fresh longer and the avocado or other vegetables taste even better. We tried this many years ago with an apple and saw what happened when we coated one half with Active H®. See for yourself!

10. Summary Chapter A:

Liquid crystal colloids – a fountain of rejuvenation

The generation of polytropic liquid colloids by adding Active H[®] powder from 1 opened capsule can improve or support our body functions in the following tasks:

- Reducing the surface tension of drinking water by structuring and ordering it
- Water energization and positive information properties (e.g. after demineralization by reverse osmosis, etc.)
- Cell energy production (ATP) and energy level
- Cell communication through revitalization of the charge potential
- Natural thirst sensation
- Hydration of body cells, cell flushing, cell metabolism
- Removal of metabolic waste and waste products
- Transport and uptake of oxygen
- Transport and absorption of nutrients, i.e. Active H[®] is an optimal complement to any dietary supplement, as it intensifies its benefits
- Main function: cellular hydration by structuring drinking water (or other liquids); generates structured “living” water which can be better absorbed by the body as it is similar to our body’s own cell water. This improves the entire body water system.

Ingredients

Active H[®] is a dietary supplement in capsule form. It contains a colloidal silica microcluster mineral complex in which the active hydrogen, i. e. hydride ions are stabilized. Active H[®] day was developed with potassium and Active H[®] night with magnesium as carrier substance.

How to make your own energy-enriched water:

Open 1 capsule of Active H[®]. The content transforms 1 – 3 liters of our normal drinking water into a highly absorbable water with a high zeta potential for humans.

It is best to use pure spring water or purified aka filtered water. In the case of reverse osmosis or steam distillation, basic regeneration, e.g. via crystals or vortexing, is also recommended.

Testimonials on Active H[®]

See part 2 as a separate document.

Active H[®] with Active Hydrogen is available at:
www.drreinwald.com

Chapter B

Hydride microclusters:
the world's most powerful antioxidant
and activator of our cellular power plants



What is the relationship between hydrogen or active hydrogen and health? Possibly you have not heard much about this importance of hydrogen? Even in standard works on food science there is hardly any reference to the importance of hydrogen, and certainly not of the hydride ion. Yet elemental hydrogen is the first and most common building block of matter. This primary substance can form compounds with almost all organic raw materials and together with them forms the most important building blocks of life: hydrocarbons, proteins, fats, carbohydrates, acids, bases and of course water. If we look at our organism, hydrogen is bound in biological molecules and cell water in every single cell. Hydrogen (H) is involved in all metabolic processes.

1. What is so special about minus-charged hydrogen?

Minus-charged or active hydrogen, H-minus or hydride ion, are all synonymous terms for a sensation in our nature. It is found in ripe fruits, vegetables or fresh spring water but it is very unstable or volatile. Preparing it with knives, blenders or juicers with metal blades or about 15 minutes of air contact (oxygen) can bring about its oxidation or inactivation. We know hydrogen (H) as the smallest element with one proton (positively-charged/H⁺) and one electron (negatively-charged/H⁻). Elemental hydrogen is relatively stable due to plus-minus attraction. However, H-minus or hydride ion means that a normal H atom has an extra electron attached and thus one proton must balance two electrons. Since this construct is very unstable and prone to immediately give up its extra electron, a hydride is very short-lived in nature under the presence of oxygen, unless it can be stabilized in a special silica mineral complex, like in glacial water (we reported in Chapter A). This synthesis is extre-

mely difficult and requires special knowledge. The carrier substance not only has to be able to store the minus charged hydrogen in such a way that it can be released again in the body after ingestion. It must also be nutritionally compatible or, better still, even valuable for the organism. The greatest difficulty in the production of an effective H-minus food supplement, however, is to first generate and “capture” the minus-charged hydrogen ions in the laboratory. A further achievement is then the storage process of the extremely short-lived, isolated hydrogen anions in minute mineral complexes with colloidal silica, which is the ideal carrier substance. These so-called microclusters, which are able to loosely bind active hydrogen to themselves, are only about 5 nanometers small – a nanometer is one billionth of a meter – i.e. are about 2000 times smaller than a red blood cell. We have often heard normal chemists say: “That cannot exist – it’s impossible! – But it is!”

The importance of H-minus ions for our metabolism has only recently been researched and the findings are revolutionary: active hydrogen is involved in all metabolic processes. It is elementary fuel for all body cells. Its loosely bound electron acts as one of the most important energy donors for our body as well as one of the most effective radical scavengers not only in the respiratory chain. H-minus can therefore protect our cells from damage and premature aging like hardly any other antioxidant.

With the microcolloidal silica crystals, the so-called microclusters of Hunza water, nature has revealed to us the model, the unique recipe, which even makes it possible to remove aluminum, as it preferentially binds to silicium. In the 1960s, Dr. Patrick Flanagan succeeded in replicating these microclusters, stabilizing them in microcolloidal silica crystals and producing them concentrated in capsules as a dietary supplement. Today, it is available as a Colloidal Silica Microcluster Mineral Complex from Patrick Fla-



Active H® day with stimulating potassium and other co-factors for active days.

Active H® night with calming magnesium and other co-factors for restful nights.

nagan's successor, Dr. Reinwald, in two different delivery forms: Active H® day with potassium and Active H® night with magnesium.

2. Anti-aging through cell protection

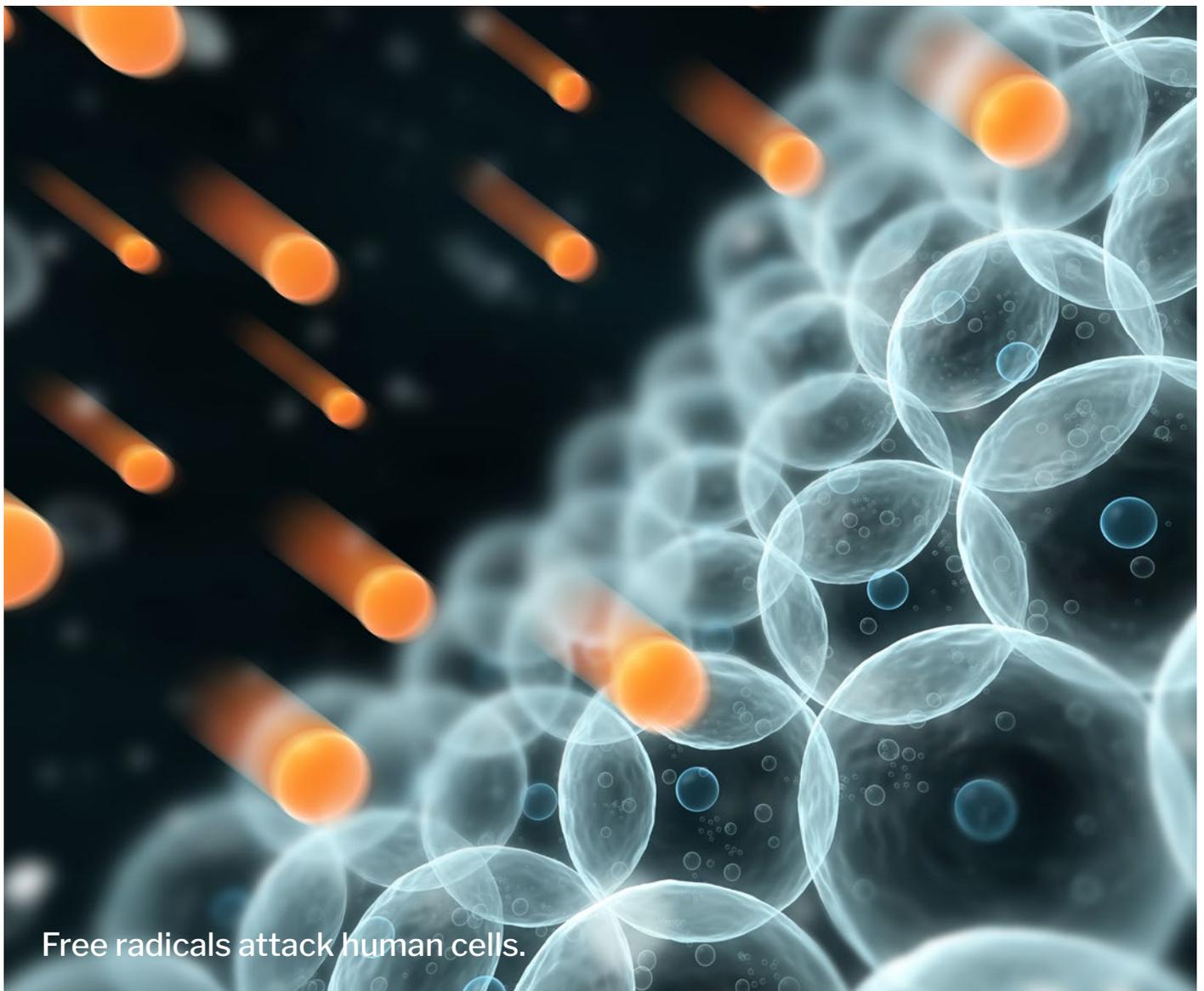
Our body consists on average of about 70 trillion cells, all of which are renewed within seven years. This means that every seven years our body substance is completely rebuilt. To achieve this, our organism is constantly working at peak performance: every minute, around 1% of our cells are broken down or rebuilt, provided that the main building materials, proteins and essential amino acids (see MyAMINO® from dr. reinwald vital), are available in sufficient quantities. With increasing years of life this build-up and regeneration performance decreases. Fewer new cells are produced, while at the same time the metabolic performance and the supply of nutrients to the existing cells decline, as do our body's own detoxification and elimination capacities, and, as a result, the tissue becomes increasingly slugged.

A chain reaction is set in motion, which further drives premature aging or degeneration. Cells renew themselves by copying existing cells. Un-

der "continuous bombardment" of free radicals, necessary for the high energy yield by the Ox-Phos-reaction in our respiratory chain, damage can occur to cells and especially to cellular genetic material (DNA/RNA). If a cell to be replaced is already weakened or possibly already has damaged genetic information, the defects can increase enormously through the ongoing copying processes. Cell damage can then become irreparable and chronic. We commonly refer to all these phenomena as "aging": the skin becomes sallow and flabby, the tissue stiffens and loses elasticity, the performance of organs and digestion decreases, we tire more quickly and feel exhausted. As a result of metabolic dysfunctions, the well-known diseases of civilization, chronic or chronic-degenerative complaints and ultimately even multi-system diseases often occur.

All these phenomena are usually due to a lack of proper nutrients and a lack of cellular energy. Hypoxia or oxygen deficiency due to malfunction of the respiratory chain in cells is at a fundamental level responsible for all diseases whose pathogenesis is influenced by abnormalities in cellular energy utilization - that is, it includes almost every known disease, writes Professor of Neurology and Pediatric Diseases Prof. Carl E. Stafstrom. (Stafstrom, C.E. et. al: The ketogenic diet as a treatment paradigm for diverse neurological disorders. *Front Pharmacol*, 2012. 3: p. 59)

This vital and respiratory energy is generated in the mitochondria, the power plants of our cells. That is why the diseases associated with the mitochondria are now called mitochondriopathies. Minimizing factors in cellular energy production are always oxygen, hydrogen and free electrons. Negatively-charged hydrogen provides both hydrogen and free electrons in a form that is highly bioavailable to the body. Electron deficiency always means disruption of the respiratory chain resulting in damage and aging. That is why active hydrogen is one of the most effective anti-aging products.



Free radicals attack human cells.

3. Basis of health care

Numerous renowned doctors and nutritionists now assume that we can no longer cover our need for antioxidants or vitamins from our food, even if we were to eat mainly fresh raw vegetables. They consider reevaluation with dietary supplements to be essential. An unfavorable lifestyle also accelerates the depletion of the body's own depots of vital substances and especially of negatively charged hydrogen. In particular, frequent distress, little exercise, sugary and one-sided diets rich in carbohydrates, smoking or environmental toxins of all kinds can lead to metabolic disorders and, in the further course, to manifest diseases .

Active hydrogen is the world's most powerful antioxidant with a laboratory measured redox potential of > -710 mV. It quickly and sustainably supports the body with a powerful neutralization on free radicals. Free radicals, also known as Reactive Oxygen Species (ROS), are aggressive, reactive substances, i.e. molecules with a high damaging effect, naturally produced by energy generation in our respiratory chain. Characteristically, they lack an electron, which they snatch from other tissues and cells to regain stability. On the other hand, however, free radicals are also increasingly produced in the human body by distress, inadequate nutrition, toxins in the environment and as decomposition products of many metabolic processes.

Prof. Bodo Kuklinsky, specialist in internal medicine and environmental medicine and head of the Diagnostic and Therapy Center for Environmental Medical Diseases in Rostock, describes free radicals as follows:

”

They swim like “white sharks” in the biochemical “ocean” of our organic small plants, forming irreversible compounds at lightning speed, attacking sensitive amino acids, fats, cell membranes, and not even stopping at the genetic material. They provoke chain reactions and form intermediate and degradation products as well as “molecular mixtures” that are of no biological use. At the end of such reactions, substances remain that the body does not know what to do with, or even completely destroyed cells. Successively they fill the waste dumps in our organism and hinder its functions until one day nothing works anymore.

Kuklinsky B.; van Lunteren I.: New chances for natural prevention and treatment of environmentally caused diseases - cell protection with anti-oxidants. Lebensbaum-Verlag, Bielefeld (1995)

Dr. Müller-Wohlfahrt, one of Germany’s best-known sports physicians and long-time team doctor for FC Bayern Munich as well as the German national soccer team, has also dedicated an entire book to the subject of free radicals. Referring to current scientific studies, he says:

”

While doctors and patients in America have been arming themselves against free radicals, which are behind 80 percent of all serious illnesses, the risk has been ignored for too long in this country. Free radicals are treacherous.

They interfere massively with cell metabolism, they damage our tissues and organs. They have become the number one health threat because they are responsible for the most common causes of death: Heart disease, cancer, Alzheimer’s disease.

(Müller-Wohlfahrt Hans W., How to protect your health – More quality of life with my instant program against free radicals. Zabert Sandmann, 2000)

But this is only half the story. Of course, in the oxygen-dependent respiratory chain of our mitochondria – the so-called OxPhos-reaction - free radicals are generated in the cells. But they are also urgently needed. They are not “evil” per se, but part of the natural steady state and important players in improving and increasing the yield in energy production. They are only harmful if they cannot be kept in check, for example because we produce too much of them due to destructive environmental influences or our poor lifestyle. So neither the Reactive Oxygen Species (ROS) nor their close relatives, the Reactive Nitrogen Species (RNS) are therefore harmful per se, but rather important compounds in biological systems. They also participate in important signaling processes and are part of our defense system. The problem is to find the right balance between oxidation and antioxidation. Not exactly an easy task in our highly poisoned environment, in which radical production shoots up into the sheer limitless.

A particularly impressive example of the Janus face of free radicals in energy production is seen in cell division, where oxygen respiration is shut down via HIF-1alpha - the hypoxia-inducing factor to control between aerobic and anaerobic energy production – to protect the genetic information of the cell nucleus from oxygen radicals during division. Energy output is lower during this phase, and so is the damaging effect. Afterwards, full energy is up-regulated

and HIF-1alpha is down-regulated again, which of course also increases the damaging effect of the free radicals. That means: without these free radicals the controlled explosion of oxyhydrogen for energy production in our mitochondria aka the OxPhos-reaction would never be so efficient: the energy yield is exponential thanks to their participation, both in aerobic glycolysis (36 ATP instead of 2 ATP in fermentation) and even more so in fatty acid combustion (> 100 ATP). They are also active in waste removal from dead tissue. So, on the other hand, the better we are armed with antioxidants, the easier it is to control the free radical damage produced in the oxyhydrogen explosion. Where there is fire, there is smoke... and we need fire as an energy source, so both must be kept under control.



4. Active hydrogen is the supervisor of antioxidants

The current situation: Today we live increasingly in a polluted environment, in which many more free radicals occur than in the past. As already mentioned and shown in the graphic below, free radicals are generated not only by the natural reaction in the respiratory chain and within immune reactions, but also by environmental toxins among others. These include in particular pesticides, heavy metals, toxic chemicals, smog or cigarette smoke. But also UV rays of the sun or radioactive radiation during air travel, various medical examinations, stress, medicati-

ons, vaccinations, e-smog or ELM waves (microwaves, cell phone radiation, 5G or computers).

Excursus

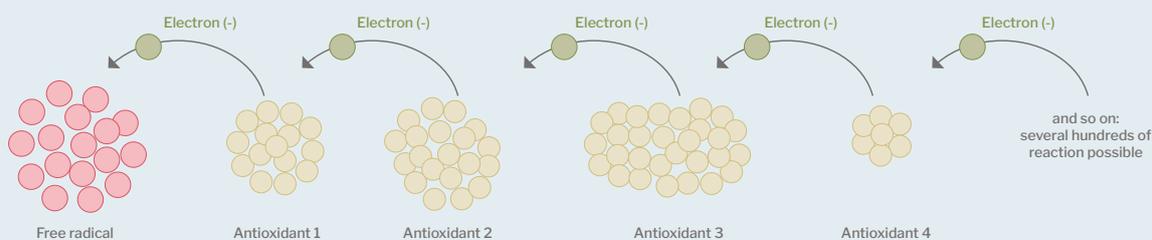
Let's use the example of cigarette smoke to illustrate the burden of free radicals as well as the resulting vitamin depletion: When taking a drag on a cigarette, the body absorbs about 10^{15} free radicals in addition to pollutants such as tar and cadmium – that's a number with 15 zeros (1,000,000,000,000,000). During the detoxification of tar and the necessary degradation processes, however, millions more free radicals are produced, which in turn stimulate, for example, the leukocytes (white blood cells) to produce reactive oxygen radicals in the body. (Source: American Academy of Dermatology, Energy Times, Jan. 1999 and Lehr et al. (1997). This explains why smokers or people exposed to cigarette smoke have a greatly increased need for vitamins and vital substances.

Electron deficiency means defects and aging. As already mentioned, free radicals lack an electron; therefore, they “wander” through the body in search of replacement electrons to “steal”. The scale of the daily assault is immense. The human body consists of about 70 trillion body cells. Every single one of our body cells is attacked by free radicals at least 10,000 times a day. When molecules from the body tissues are forced to give up their electrons to free radicals, their cells suffer damage. The result can include damage to DNA and RNA inside the cell, to the cell membrane, and to many other important molecules in the cell environment, leading to premature aging as well as dysfunction and increased susceptibility to disease.

The solution

Our organism provides so-called radical scavengers or antioxidants to contain the free radicals resulting from oxygen-induced cellular respiration, provided that it is capable of doing so and is supplied with sufficient vital substances from food. Antioxidants can give free radicals what they need: extra electrons. The problem is that when a conventional antioxidant donates a regular electron, it then lacks that very electron itself and in turn becomes a low-grade aggressive free radical. The now itself oxidized vitamin aka the damaged antioxidant will now snatch an electron from the next weaker antioxidant substance, and so on. The result is a chain reaction that wears down resources, which experts call an “electron cascade”, until equilibrium is restored.

Electron cascade until the reaction chain decays

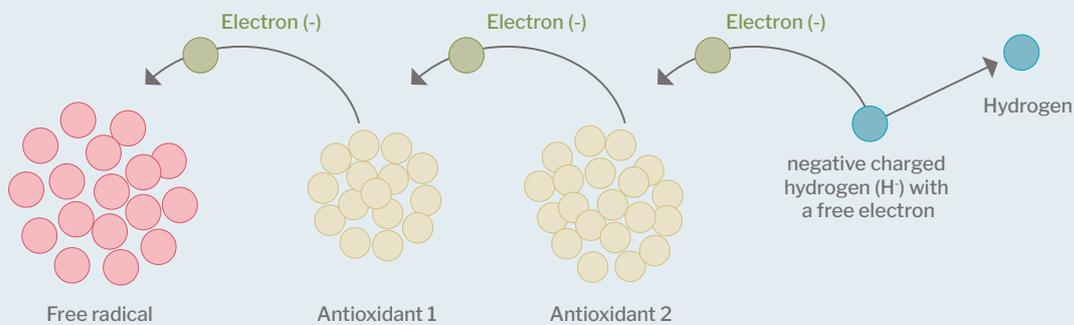


Electron cascade until the reaction chain subsides: The free radical obtains an electron from an electron donor (antioxidant). If the donor molecule then lacks an electron, it itself becomes radical and in turn gets an electron from another antioxidant, which then also becomes radical and so on. This process can trigger several hundred chain reactions. In the process, numerous radical scavengers or antioxidants are worn out.

Each microcluster molecule with active hydrogen supplies innumerable negatively charged hydrogen ions or neutralizing electrons. The importance of appropriate precautions against the formation of free radicals becomes clear when you consider that a cell already has to cope with about 1,600 such redox reactions per second in the normal case of cellular respira-

tion! In just one capsule of Active H[®] there is an electron potential of about one billion electrons released by hydrogen anions (H⁻), which is one million trillion or 10¹⁸ (!) electrons.

Additional electron of the active hydrogen



The extra electron of the active hydrogen is able to stop the electron cascade immediately. The reactive hydride ion can donate its excess electron to free radicals without becoming radical itself. The chain reaction is stopped immediately without damaging other substances. Normal hydrogen remains from the active hydrogen and can be used for metabolic processes.

Patrick Flanagan said of his discovery at the time,

”

1 capsule of Active H[®] has the antioxidant power of 10,000 glasses of freshly squeezed orange juice.

Since hydrogen (H) is the smallest element in the universe, this means that active hydrogen is also so tiny that it can penetrate cell membranes and, of course, the blood-brain barrier. I.e. hydride ions are thus active in all body compartments.

5. Strong antioxidants can protect and regenerate vitamins and weaker antioxidants

Active hydrogen as in Active H[®] corresponds in its mode of action to food-typical and endogenous vital substances such as NADH, glutathione

or Q-10 and acts as an extremely strong radical scavenger with freely available electrons, properties otherwise only exhibited by alpha lipoic acid. Its strong antioxidant power with excess electrons can break the electron cascade by donating these electrons to free radicals, but also to other antioxidants and vitamins that have been inactivated by electron theft and “paralyzed”, so to speak, after the first shot, thus “feeding” them up again. This can additionally promote protection and regeneration of these valuable vitamins and has a double effect: one radical less and one radical scavenger or vitamin more. Active hydrogen cannot replace other vitamins and antioxidants across the board, because specific vitamins have specific tasks in the organism, e.g. as catalysts and co-factors, which they should fulfill causally. However, active hydrogen helps to keep specialized vitamins longer in the circle of their anti-oxidative function. Nonspecific and specific radical scavenging functions thus support each other in an ideal way.

Redox potentials of vitamins and other antioxidants



Negatively-charged hydrogen (Active H⁺ in the graph) is the strongest known antioxidant, i.e. it has the highest measured potential to give up electrons.

Active H⁺ has a redox potential of approx. – 710 mV

The redox potential or reduction power or ORP is a description of the antioxidant strength and measures the driving force of a substance to accept electrons (\approx oxidation power with plus (+) sign) or to give away electrons (\approx reduction force with minus (-) sign).

The active hydrogen complex **Active H⁺ (approx. – 710mV)** has **more than twice the antioxidant power of NADH (approx. – 320mV)** and is around **99x stronger than vitamin C (approx. + 80mV)**.

6. Minus-charged hydrogen can improve the bioterrain in the body (acid-base balance)

All metabolic processes as well as the body's amazing abilities to heal itself (protein synthesis, bone formation) require a favorable bioterrain to unfold. One of the most important basic functions here is the acid-base balance. Unfortunately, due to acidic, carbohydrate-rich diets, oxidative stress, environmental pollution, and generally faulty and poor nutrition, many people have an excessively acidic milieu that

places an extreme strain on the organism's buffer capacities. On the one hand, persistent hyperacidity can lead to the well-known diseases of civilization through metabolic malfunctions and the increased inflammatory susceptibility of hyperacidic tissues. On the other hand, it can be the ideal breeding ground for undesirable growth activities from the bacterial, parasitic or fungal activity due to the milieu shift. The supplementary intake of minus-charged hydrogen ions naturally also contributes to the buffering of acids in your body tissues via its abundant electron donation and thus to the restoration of

the natural acid-base balance. Electron and redox-reaction is the mirror image counterpart of acid-base balance. Active H[®] has not only a high redox potential due to its excess of electrons, but also a value of pH 10.



Mitochondria drive energy production in cells – concept of biochemical metabolism

In cases of acute stress or even poisoning (e.g., from unsuitable mushroom dishes, spoiled food, or bites or stings from infected or venomous animals), an immediate high-dose administration is recommended. Hydride microclusters deliver billions of electrons or ions that can rapidly neutralize acidic and positively charged toxins. Similarly, these hydride microclusters exhibit strong antibacterial, antiviral, and antifungal effects. Due to its high alkaline potential, active hydrogen can help restore the body's bio-terrain balance, thus depriving bacteria, viruses, and fungi of the conditions they need to thrive. To support the body's defenses in cases of environment-related disturbances or immune deficiencies, we recommend an increased intake of 4 capsules every 4 hours for a few days.

7. Fuel for cell energy production (ATP) and energy level

A sufficient supply of oxygen is vital for our bodies. However, few people are aware of the crucial role that hydrogen plays in this for our health. "Hydrogen is the fuel of life" ... empha-

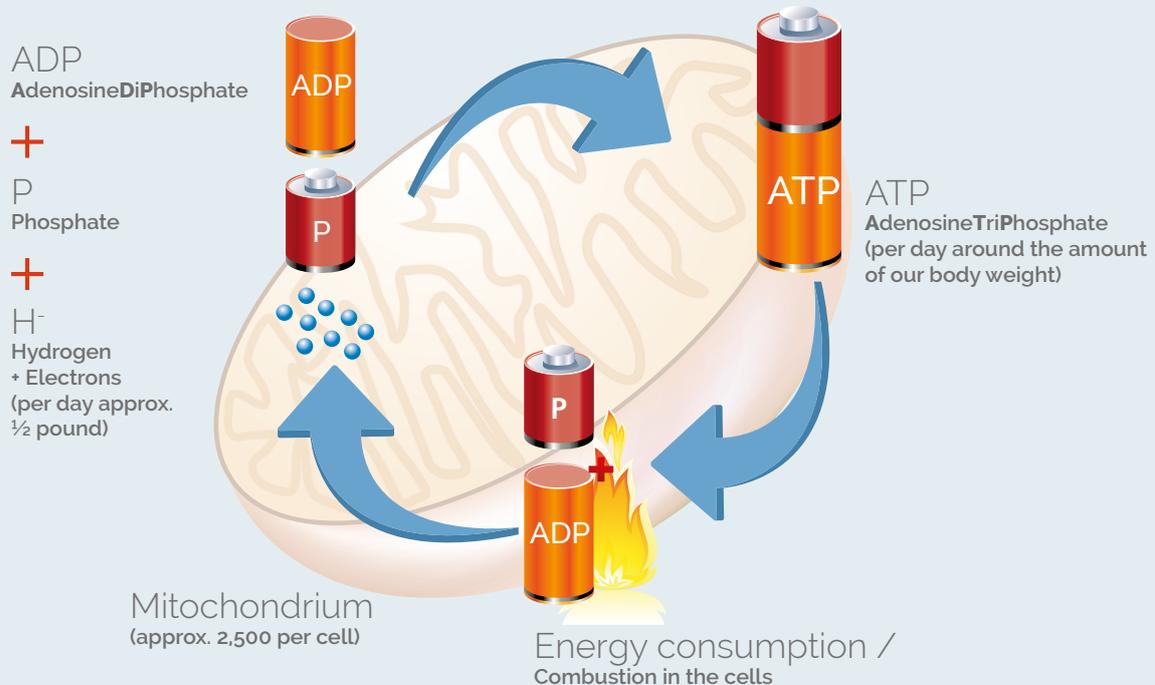
sized Dr. Albert Szent-Györgyi, Nobel Prize Laureate and discoverer of the vitamin C. Hydrogen and oxygen are involved in the formation of the energy molecule ATP (adenosine tri-phosphate), which supplies every cell in our body with life energy. Recent research has shown that ATP also has an important neurotransmitter function in our organism. A human being converts his own body weight of ATP per day. With a body mass of approx. 70 kg, he produces approx. 70 kg ATP per day at rest (equivalent to 8,000 kJ/day), in competitive sports up to approx. 200 kg ATP and in high-performance cycling even up to 500 kg ATP! The formation of ATP is causally related to the generation of NADH from NAD⁺, which in turn requires protons (H⁺) and electrons (e⁻) to buffer and maintain this process in a kind of perpetual motion. And that is exactly what Active H[®] delivers. This means that Active H[®] significantly supports the production of the body's own NADH.

Minus-charged hydrogen (hydrogen + electrons) is "fuel" for the mitochondria in energy production, because it supports the formation or regeneration of NADH and thus cellular respiration. For this reason, low-energy or stressed individuals (burn-out), athletes and others who take Active H[®] feel more energy and more endurance. By taking Active Hydrogen, it is possible to reduce the load of levorotatory lactic acid (lactate), which can occur during sports activities, by up to 50%. This means more endurance and more power, but also faster recovery.

8. Physical and mental performance, endurance and regeneration

If the organism does not have enough reserves of hydrogen (H) atoms and freely available electrons, this can lead to malfunctions in the important metabolic mechanisms of the citrate cycle, the respiratory chain and the electron

Energy production in the mitochondria (respiratory chain or electron transport chain)



Adenosine tri-phosphate (ATP) is the key molecule of our energy metabolism. It is built during oxygen consumption in our mitochondria from adenosine di-phosphate (ADP) + phosphate (P) + hydrogen (H) + electrons. If the synthesis performance decreases persistently, we know this phenomenon as Chronic Fatigue Syndrome (CFS/CMS), Mitochondriopathy or Burn-Out.

transport chain. The result would be a switch of the muscle cells to anaerobic metabolism as an “emergency power generator”. As with proliferating cancer cells, the nutrient digestion takes place predominantly as fermentation. In the process, a large amount of anti-inflammatory lactate is formed, which is accumulated in muscle fibers and in the blood. Muscle soreness, acid stiffness and inflammation-promoting cellular respiration as well as their metabolic degradation toxins put a direct strain on the athlete’s body and could endanger health (e.g. heart, degradation organs, joints, base depots) or lead to premature aging (burn-out, wasting).

Each capsule of Active H[®] provides the body with millions of valuable negatively-charged hydrogen ions that support both hydrogen and electron needs. Along the way, an electron supply improves mental fitness by building membrane voltage on brain and nerve cells, as well as nerve conduction pathways for better concentration and shorter reaction time. At the same time, hydrogen ions are so small that they can supply electrons and hydrogen to all compartments and cells of the body, including the brain.

By taking active hydrogen, you can reduce the exposure to lactic acid from muscle work

by up to 50%, as the aerobic metabolism is supported and stimulated. Physical performance potential can be optimized or even expanded and stamina breaks (in triathlons, marathons, cycling races) can be avoided. Due to reduced lactate accumulation and a higher energy status from increased ATP and NADH levels,

faster recovery can occur. In this way, performance and the course of the competition can be increased in all sports, especially if the nutritional basis is based on the right protein diet with the eight essential amino acids (see MyAMINO® from dr reinwald vital).

What improvements can athletes in particular achieve with Active H®?

- physical, athletic and mental performance, endurance performance
- ATP and NADH formation and energy level
- brain performance, concentration, alertness, shortening of reaction time
- physical and mental regeneration
- strengthening of heart, immune system, cell protection = anti-aging, libido
- subjective feeling of happiness (due to dopamine stimulation), stress reduction



Active H® with Active Hydrogen is available at: www.drreinwald.com

9. Summary Chapter B:

Hydride microclusters: the world's most powerful antioxidant and activator of our cellular power plants

The hydride ion microclusters with colloidal silica binding in Active H[®] can improve or support our body functions in the following tasks:

- Cellular energy production (ATP) and energy levels
- Cell communication by revitalizing the charge potential
- Regeneration of the innate hydrogen depot, which is depleted in the course of our lives
- Acid-base balance: shift of the bioterrain towards alkalinity; counteracts overacidification or acute stresses
- Neutralization and removal of metabolic waste and waste products
- Transport and absorption of oxygen
- Transport and absorption of nutrients, i.e. Active H[®] is an optimal complement to any nutritional supplement, as it intensifies its benefits
- Regeneration and protection of other vitamins and antioxidants
- Silicium is known for its strong binding to aluminum, which can be beneficial for detoxification
- Main function: Provides free, negatively charged hydrogen ions for cell protection through strong antioxidant power. With a redox potential of about -710 mV, active hydrogen is the world's most powerful and smallest antioxidant. It can thereby protect cells from free radicals by immediately stopping electron chain reactions (electron cascade). One capsule of Active H[®] provides millions of hydride ions (H-minus).

Ingredients

Active H[®] is a dietary supplement in capsule form. It contains a colloidal silica microcluster mineral complex in which the active hydrogen, i.e. the hydride ions are stabilized. Active H[®] day was developed with potassium and Active H[®] night with magnesium as carrier substance.

Use of Active H[®]

As a dietary supplement, consume 2 capsules of Active H[®] day daily in the morning or during the day and / or 2 capsules of Active H[®] night in the evening with good water. Take an additional 1-2 capsules before sporting activity. In case of high oxidative stress or acute cases for buffering up to 4 capsules every 4 hours.

Testimonials for Active H[®]

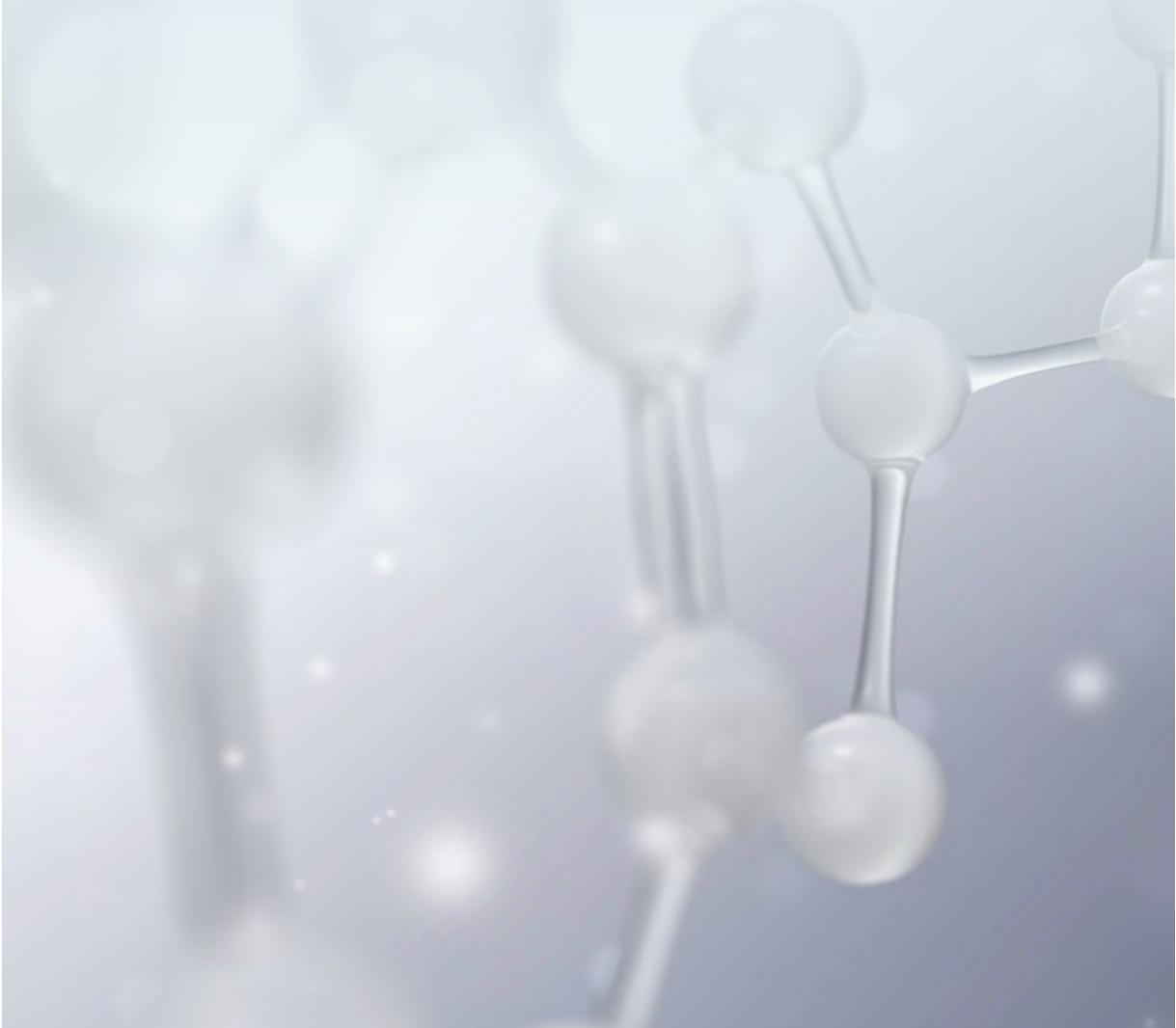
See part 2 as a separate document.

Active H[®] with Active Hydrogen is available at:
www.drreinwald.com

Overview

Active H[®] is a distinct anti-aging formula. The active-hydrogen microclusters in Active H[®] can counteract cell damage and damage to genetic material (DNA) caused by free radicals, a major cause of aging processes. The countless hydride ions (H⁻) provide about one third of protons (H⁺) and twice as many, i.e. two thirds of electrons (2e⁻), which are needed in all metabolic processes and make up the electrolyte balance as well as the charge potential in cells and nerves, which keeps our body processes alive. Above all, through ATP synthesis, they promote energy production and energy level of our organism.

Active H[®] can also improve the utilization of nutrients from other foods or food supplements. Dissolved in drinking water, the liquid colloids counteract the dehydration that accompanies all signs of aging. Body cells can be optimally supplied with nutrients by optimizing the transport properties of the cell water and can be efficiently detoxified by cell flushing. Active H[®] has a direct influence on mental strength and the ability to concentrate, a balanced powerful psyche and counteracts fatigue and burn-out phenomena by reducing tiredness and fatigue via the polarisation of the nerves and the conduction of stimuli.



Promotes and improves...	Active H® day	Active H® night
Strong antioxidant power	✓	✓
Cell protection against oxidative stress (neutralization of free radicals)	✓	✓
ATP production / cell energy	✓	✓
Reduction of fatigue and tiredness	✓	✓
Metabolic processes through protons and electrons	✓	✓
Cell potential (zeta potential) by protons and electrons	✓	✓
Electrolyte balance in body	✓	✓
Alkaline effect on the pH environment in the body by buffering acids	✓	✓
Silicon binds heavy metals and other pollutants (positively charged cations), special binding capacity of silicon and aluminum	✓	✓
Mental function and nervous system (balance)	✓	✓
Cognitive function / mental energy	✓	✓
Improving detox processes due to bind to positively-charged toxins	✓	✓
Bioavailability of water (surface tension)	✓	✓
Cellular hydration	✓	✓
Nutrient transport	✓	✓
Oxygen transport	✓	✓
Removal of metabolic waste	✓	✓
Anti-aging effect	✓	✓
Immune system (defense power)	✓	✓
Stimulation of the heart by potassium	✓	✗
Relaxation of muscles and nerves through magnesium	✗	✓

heinz@drreinwald.science

If you have any questions, please feel free to contact me.

www.drreinwald.science