

2015

Ondamed Workshop A4M Las Vegas Lyme-disease: What to do if antibiotics fail?



Silvia Binder, N.D., Ph.D.
Germany



Bjørn Øverbye, MD
Norway

BOOTH #2015

(((ONDAMED®)))

a better way to make you better

Join us at the ONDAMED® Workshop
"Lyme Disease: What to do if antibiotics fail?"
Friday Dec. 11 from 6.30 to 8.30 pm

Complimentary Wine, Beer and light Snacks

Bjørn J Øverbye, M.D.

Norway

www.dr-overbye.no

11.12.2015

A pilot-study on the effects of ONDAMED's focused pulsed electromagnetic fields on symptoms caused by Post Lyme Disease Syndrome

By Bjørn Johan Øverbye MD
www.dr-overbye.no

Abstract: *Lyme-Borreliose is the name for a number of diseases and syndromes where one finds live Borrelia spirochetes in the blood and accompanying immune-responses to these. After being treated with antibiotics according to protocols developed by governmental establishment expert groups, many patients experience lingering symptoms known as PLDS (Post Lyme Disease Syndrome). PLDS can manifest as anything from Chronic Fatigue, ME, neurological symptoms, and psychiatric diseases to skin manifestations, rheumatism and endocrine disruption. There is currently no agreement to the cause of PLDS amongst governmental expert groups; neither how to treat nor what to expect. In such an absence of consensus an increasing number of PLDS-patients seek alternative therapies. One popular therapy is the use of electrical or electromagnetic stimulation. Electrical therapies known as Zappers or Rife Machines claim to kill microbes in the body. Electromagnetic therapies use devices, often highly advanced circuitry to transfer low intensity (milli-Tesla range) electromagnetic impulses to specific body parts. This article tries to understand the problem of PLDS and to investigate possible effects, if any, in volunteers suffering from PLDS who had been using the ONDAMED Focused Electromagnetic Stimulation combined with Biofeedback. Effects were measured by using questionnaires wherein volunteers recounted their subjective experience of their treatment. Microscopic live-blood analysis of immunity status was used to see how such fields influence immunity. Biophysical equipment was used to evaluate autonomic nervous system activity and bioelectrical activity. Our investigations in the literature showed that PLDS may be linked either to autoimmunity or lingering undetected Borrelia or other tick-transferred microbes not killed by first effort. Our literature search found an astounding number of works concerning effects of electromagnetic biological activity. The investigation of 5 volunteers showed a diminishing of subjective symptoms, lowering of overall stress using standard HRV analysis. There was a reduction in aberrant bioelectrical activity using EU certified bio-electronic-test equipment, indicating better overall function in the autonomic nervous system and the so called meridian system. Live blood analysis showed varied result from good improvement in one subject to absolutely none in others. There was no proof that the method in any way killed Borrelia; but there is indication that the therapy may change the overall function of the organism thereby paving the way for self-healing so that sick carriers of Borrelia may turn into healthy carriers. This leads to a further discussion outside the scope of investigation; namely: Are Borrelia and similar microbes "immortal" in the sense that no antibiotic or drug may ever kill them and that all we can hope for is to turn sick carriers into healthy ones?*

We first want to thank Ondamed representative in Norway Engineer Erling Veбенstad for doing ONDAMED Therapy and the Ondamed Company for donations to do this research. Other sources of support were an unnamed benefactor who let use an industrial quality microscope with full video capture worth 20,000 Euro.

The terrain

“The map is not the terrain”

Alfred Korzybski

Polish-American engineer and semantic investigator

Founder of the science of General Semantics

Philosophical stand.

Science is not a system or a creed, it is nothing “owned” or “administered” by a group of individuals, a government agency, ruled by laws invented for lawyers or a religion handed out by any God. Science is a conglomerate of methods invented by men/women to make a system of data collected by the human sensory system or instruments with the purpose of bringing to consciousness certain areas of inner or outer realities of men. Science is not static, it is constantly changing. Static knowledge formed into a certain system of “unchanging truths” is merely a religion in disguise proposed by certain groups of vested interests to rule the free spirit of other investigators thereby leading ultimately to persecution of “deviants” and ultimately to stagnation of collection of data of an ever-changing world never at rest. In our search it is also wise never to forget the discovery of Nobel Prize winner in physics Werner Heisenberg ¹ that whatever man investigates by his senses or his machines is influenced by his action of investigation, thereby making it impossible for anyone to claim to have seen “the world as it is”. Whoever we see or measure is an interaction; nothing more, nothing less. Objective truth is thus a construct in the mind of the beholder of phenomena. The difference between various constructs lies in their usefulness for the mind operating in a certain environment.

Lyme disease.

Lyme disease is a well-known infectious disease after Allan Steere first described it in his first patient Polly Murray and then the following year in 38 other adults and 12 children from Lyme County in Connecticut. Their common traits were fever and joint pains after having been bitten by a tick. A sample of ticks from the area was sent to Swiss borne zoologist William Burgdorfer working at the Rocky Mountains who then identified several microbes in the gut of the ticks; one of them was a spirochete already known in Europe since 1905 as *Borrelia*. Before then the parasite was known as *Spirilla Obermeier*, named after its discoverer Otto Obermeier who first saw it in blood of sick people in 1968.

According to the tradition of the times William Burgdorfer was allowed to attach his name to the microbe which by then had been known in Europe by more than 107 names.

Borrelia diseases then reappeared in USA with new names such as *Borrelia burgdorferi* and Lyme disease. Its presence created a furor that started with enthusiasm and gradually ended in a veritable war² between various groups of doctors that never seemed to agree upon the nature of the microbe, its importance and how to diagnose and treat the various diseases it causes. As always, the patients are in the middle between the warring parties. And still: no truce in sight.

Nature of the microbe.

Borrelia burgdorferi (Bb) often mentioned as if it was the only spirochete is however not all that unique. It is only one within the family of *Borrelia*-spirochetes. Amongst zoologist the family (species) of *Borrelia* counts more than 36 subspecies living and thriving in practically any warm-blooded animals and birds. As if not enough; *Borrelia burgdorferi* is proven to change gene-structure once inside the host, becoming what is called a host-adapted-microbe³; a quality causing changes within all parasites⁴.

.As often in real life the idea of one unique phenomenon seems to split into various phenomena when investigated more closely. With host-adapted- *Borrelia*s around the variation of one single species like the "classical" US- type: *Borrelia burgdorferi* has split into subtypes as is also the nature of parasites^{5,6}.

I for my part was infected in 1978 with the type *Borrelia garinii* known by now to cause neurological infections of various types. Judging from my own ill-fated case, I can subscribe to all the ills described by my neuro-borreliose patients including psychological symptoms due to organic brain-damage; which I eventually healed by nonorthodox means; since at that time "Borreliosis" was an unknown phenomena in Norway and antibiotics was not what doctors remotely thought of when I was hospitalized with cramps, delusion and speech impairments. Today the situation is unfortunately not much better.

The microbe and the immune system.

In traditional microbiology as we teach students at the universities the science of the day is a more than 150 old dogma called professor Robert Koch's postulates (Statements to be accepted as truth without proper evidence).The postulates state amongst other things that a specific microbe is always unique in nature and shape and will always cause but one typical illness both in the patient and the laboratory animals into which it is consequently injected in the name of science⁷. It goes well for simple causes as pneumococcal pneumonia; for *Borrelia* and a host of parasites there is hardly any similarity between the postulates and reality. The map is old and tattered and not applicable to the terrain, using the now universally adopted scientific idea of founder of general semantics Alfred Korzybski⁸: The map is not the terrain.

The *Borrelia* family is not one shape/type moving from animals to men and amongst men inside ticks: It is a super -parasite with 900.000 base pairs in its DNA constantly shape-shifting. The feat is known as pleomorphism; a common ability with all true parasites.

Microscopists have identified various forms of the original threadlike *Spirilla* (Spirochete) that medical students even today are taught to be the standard appearance. It is not so: it is just a variation of a pleomorphic organism. According to one of the best experts on *Borrelia* pleomorphism, Dr. Alan B McDonald⁹ at the University of New Haven University "the *Borrelia*-family of parasites has two basic shapes: the corkscrew-form (*Spirilla*) and the round form known by names such as Round Body (RB), Cysts or Gemma (Latin word meaning "bud")."

In a hostile environment, such as under attack from immune cells or antibiotics can within a second change their corkscrew form to either rolling up sideways as a cyst that it creates from its own body or it will create "blebs" on its surface that will drift off as

Round Bodies¹⁰. A RB contains either one or several rolled up spirochetes or just their DNA. The RB can then go on dividing and producing copies of itself just like the original RB from which they came. RB-forms are more robust than the spirochetal form and they can lodge into other cells or tissues and McDonald found them even in brain autopsies from Alzheimer patients¹¹.

As if not enough: any spirochete can in hostile environment also shed their outer wall and turn into wall-free variations: one looking like a short “rod type” and another looking like spheroid. These wall-free forms are called L-forms after the Lister Institute in London where L-forms were first seen.

The microbe also uses a number of other counter-measures in the war to sustain itself and its off-springs inside a host in desperate war to eradicate the microbes. It can coat itself with slime so that humoral antibodies library slides off its surface. It can wiggle and vibrate vigorously so that already attached antibodies fall off; a process known as shedding. A number of microbes can penetrate into tissue to avoid the immune system or nest up and cover themselves with slime, also called B-film.

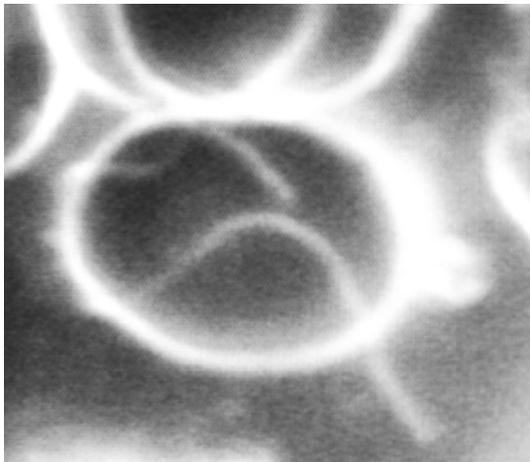


Figure. 1 *Borrelia burgdorferi*, photo B. J Øverbye MD, 2014. Hund Microscope 1000X

During attack the microbe also has a nearly perfect manner to fight the immune system due to their 21 plasmids on the surface that sense the incoming attacks and reshape the genetical structure of the microbe to avoid the immune system-cells to detect deviant cells and organism. And if this were not enough; according to Hungarian Borrelia specialist Bela Bozsik¹², the Borrelia-family of microbes can imitate the surface on the thyroid gland so that immune antibodies produced to kill the Borrelia in the end starts to kill the major energy-regulating gland in the body: the thyroid gland. In this manner the microbe manages to turn down the production of the most vital hormone

for energy regulation thereby down regulating the whole immune system.

And finally; Borrelia due to its advanced genetical structure is a master in the game of mutating often even or especially when being under attack from antibiotics.

Facts often overlooked by traditional medicine.

These facts briefly described here, but completely covered in detailed literature as well as in my own book in which a world leading microscopist is interviewed, can prove the use of advanced immune testing methods and advanced ultra-high resolution dark field microscopy. These methods show something most official medical authorities do not like to hear: most Borrelias do not die completely even after weeks of antibiotic therapy given in doses as assumed by most authorities to be “enough”.

World renown microscopist Bela Bozsik in Hungary who can point to an astonishing record of 100.000 diagnosed Borrelia-cases over a period of 40 years whom I have interviewed three times, claims that most official cures advocated by industrial medical complex as being “sufficient”, may indeed only be temporary value since not enough antibiotics is given when deciding to use chemical warfare



Figure 2 : L-form. Screenshot from Dr. Bozsik 's microscope 2014

This situation creates a high percentage of carriers, some symptom free and some with symptoms, all assumed to be “healed”. Instead the patients now carry a more antibiotic-resistant ready to spread by vector blood-transfusion or sex.

Why is this not realized by official medical industrial complex? Because so many patients have turned sero-negative carriers and others still producing IgG immune proteins are wrongly assumed to be healthy.

So in the havoc of the ongoing war between the immune system and onslaught of antibiotics by the doctor the microbe seems to have outsmarted them all and managed to live undetected by the immune system thereby misleading the laboratories to believe that a sick person with negative immune-response is free of the microbe. Using even more sophisticated tests like Lymphocyte Transformation Tests¹³ and the recent Bozsik Dual Dark Field Microscopy methods and the extended Blot and ELISA tests anyone in the medical community can prove that there is *still active microbes in a host of seronegative patients*¹⁴. Even more disturbing is the fact that many healthy people are carriers of Borrelia awaiting the immune system to get weak due to age, stress, malnutrition, certain medication, radiation, and environmental toxins; and then start to multiply causing a number of symptoms in the host diagnosed by uneducated doctors as “something else” or “something unknown” leading to : “something is going on we know nothing about”.

But for the educated and knowledgeable doctor there is an explanation based on proven facts, a possible cure and also a possible conflict with those having access to less knowledge and laboratory service. No wonder the advanced doctors run into problems these days.

Antibiotics: the sword that kills friends and foe.

The basic tools of the trade in infectious disease therapy above all are antibiotics which in essence are highly toxic substances killing microbes .Their benefit is undisputable since they first appeared 110 years ago with Paul Erlich ill-reputed Salvarsan that not only killed syphilis spirochetes, but unfortunately also killed a few patients in the hands of doctors not following Erlich's recommendations .The next leap forward was doctor Alexander Fleming in 1928 discovered that Penicillium fungus had the ability to kill bacteria. In 1938 professor Howard Florey¹⁵ and his Jewish college doctor Ernst Chain extracted the fungal poison now named penicillin and another college doctor Norman Heatley developed a mean to mass-produce it. In 1941 production was to be started in USA where lab assistant Mary Hunt discovered a new type of fungus: Penicillium chrysogeu; it became the basis for mass production of the final product penicillin¹⁶. From then on the war against microbes started.



Figure 3: Borrelia L-form and Cyst, B. J. Øverbye, 2013, Hund Microscope 1000X

In his Nobel Prize speech in 1945 Fleming warned against bacteria resistance as an unwanted by-product of mass use of antibiotics. His warnings were not taken seriously. Today doctors, veterinarians and the farming industry pour enormous amounts of antibiotics into the ecosystem. Industrial farming of pigs, sheep, hens, turkeys, and cattle and not to forget fruit growing would be impossible without massive use of antibiotics.

More than 60% of all antibiotics ever produced end up in the food on your table: By then the remaining in the food has been dumped into the eco system through urine and manure from livestock. This avalanche of chemical sludge increased the number of any type of microbes ever considered to cause diseases in man, animals and plants to turn multi resistant. For anyone doubting the scenario we recommend Christopher D Cook's magnificent epic book "*Diet for a Dead Planet*"¹⁷.

And when we add that we have 70 years of more than liberal use of antibiotics in and out of hospitals for nearly every infectious disease we are now in that age Fleming warned us not to enter: The age of multi resistance and globally resistant microbes¹⁸.

In this age scaring scenarios are emerging. Previously antibiotic-resistant was poorly understood. Today we know more about it. The realization that phage (viruses infecting bacteria) can transport bacterial genes laterally between microbes of various types within hours of a mentation taking place and thus make resistant encoding genetic material available to every microbe in a host or in an ecosystem. Not only does this phenomena affect virulent microbes it will also affect your symbiotic microbes. Suddenly the game of survival looks different; what happens when your virulent microbes, your symbiotic helpers and microbes in the water and food-chain start to change? What will happen? Is the dramatic rise in post infectious fatigue syndrome and inexplicable immune deficiency syndromes a warning of a coming disaster that starts by the killing of the useful symbionts? As writer Carl Zimmer warns in his book about microbes, parasites and ecology: *Parasite Rex*¹⁹. An ecosystem breakdown is not when larger animals die out; it is when the parasites die out and then you should be scared. Food-industry and industrial medicine's abuse of antibiotics is a major contributor.

Despite all beautiful words of a sustainable future and less antibiotics and toxins into the lifeblood of the planet, modern industrialized medicine has not changed their course accordingly except for one singular case: Treatment of Lyme! When it comes to patients succumbing to Borrelia the advice worldwide is clear: Do not treat even the sickest patients more than 3-4 weeks with a mild antibiotic cure, or else one will add to multi-resistant problems²⁰.

At the bottom lies a most unwelcome dispute between conservative government based think tank groups claiming Borrelia is simple to kill; thus offering short spanned cures. Then there are the opponents of the governmental experts: doctors who claim to have better laboratory service and thus seem to know otherwise; Borrelia must be treated for at least 2-3 months thereby attracting criticism and being accused of creating multi-resistant bacteria not including Borrelia which is supposed to have died after 3 weeks of therapy²¹.

The ongoing discussion seems to no avail and has squeezed patients between a rock and a hard place. On one side governmental minimalists using minimalistic, cheap diagnostic methods and adhering to a few weeks antibiotic cures. It solves the problem for some; but according to a growing number of patients who suffer more and more from chronic stages with probably antibiotic-resistant *Borrelia* spreading causing a host of problems. On the other side what traditional doctors often call the “maximalists” have more liberal use of antibiotics with protocols extending for months and sometimes years. They claim to have proof to heal those whom the governmental groups do not cure but name PLDS instead²².

Hungarian grand old man Bela Bozsik complains in European *Borrelia* research: “*In Hungary and many countries you can treat as much as you like, unless you send the bill to the government or the insurance companies*”. This is one of the major problems with the ongoing “war”.

While the discussion is heated and former colleagues in the medical fraternity are turned into enemies over the diagnosis and therapy of the ill-fated *Borrelia* and its victims, something is indeed in need to be done. Could the alternative be to neither have a short or long antibiotic course of treatment action, offering a harmless cure while keeping costs down? Could this be something that most therapists, even non-medical staff could do? Does it exist? I wondered and set out to find it. Having read and digested over fifteen thousand pages of scientific reports, having interviewed several experts on two continents and having spent a good US\$30,000, I ended up writing a 370-page book. Finally I came to the conclusion that there is a possible alternative after a proper course of antibiotics has been applied and not reached its goal²³. Could the answer be *immunotherapy*?

Immunotherapy.

There has always been a way out in nature: “natural warfare”. It has been going on since this planet was created. The very first inhabitants were the multitudes of unicellular lifeforms; at present representing a biomass outnumbering the total biomass of all plant and animal life. An estimate is that there may be a number of the magnitude of 31 zeroes after the first digit of microbes, more stars than in the whole universe on this singular planet²⁴.

This staggering number of lifeforms is kept in harness by an ingenious system called microbial warfare. Every bacterium there ever was is under attack by an even larger amount of viruses known as phage. Every bacterium is so to speak sick with phage. Only the strongest and best adapted bacteria survive ensuring that the bacterial basis of the planet is fit and strong by being selected by phage warfare. The growth of phage on its side is kept down to a sustainable level by healthy, infected bacteria having solved the problem by making toxins that kills phage! The host and the guest benefits from this war; only the best fit phage survives together with the best fit bacteria²⁵.

Is the design universal? As the sheer amount of data piled up using high resolution ultra-dark field microscopy filming live blood and microbes in an ever growing number of patients I came to see the same scenario in humans (and other animals).

There is a war between host and guest also on the larger scale and it certainly pertains to Borrelia. Borrelia is one of many warm-blooded animals' natural pests like the phage is bacteria's pest. The function of Borrelia is to keep the number of weak individuals down and let the strong and health survives. How else to interpret the scenario? By now I have seen enough healthy carriers of multiple possibly pathogenic microbes and sick ones and compared the two groups to understand that Lyme is not something you automatically "get" after a tick bite. The scenario is much more complex as it is with the phage and the microbial world²⁶.

All Borrelia is itself infected with phage. Only the strongest Borrelia survives. Humans are infected with Borrelia; the same repeats. The number of carriers of Borrelia and a number of other blood parasites as identified by live blood microscopy and immunologically identified by serological testing seem to outnumber the actual number of people diagnosed with Lyme.

According to recent statistics from my home area in Arendal County, 20% of all inhabitants seeking medical help have positive Borrelia IgG serology!! Only a few are ever treated, since IgG is consistently assumed to mean "have been infected but are now healed either by antibiotics in the past or by itself"²⁷. According to all knowledge we have about Borrelia today, those people may still have live Borrelia in their blood. Random blood tests taken by the author to test the hypothesis strongly support the suspicion: a large number do have live Borrelia swimming in their blood.

So why are not more people sick? And why do some with Borrelia get PLDS and others not? The answer is what Carl Zimmer in his book Parasite Rex calls the "parasites of the parasites" - the human immune system!!

Immunity war²⁸.

Promotes immunity	Weakens immunity
Biologically health plant foods rich in phytochemicals ,micronutrients and free of toxins²⁹	Junk food , industrial processed foods
Enough minerals and vitamins	Lack of the same in amounts high enough levels to sustain a healthy immune system
Genes: borne by healthy parents	Born by not healthy and weak parents
Age: you are better off in young age	Old age
Certain medicines known to weaken your immunity	Immune weakening medicines: cortisone, cytostatic, etc.
Absence of harmful radiation	Thermal and harmful non thermal radiation known to harm man
Beneficial electromagnetic fields from the earth and certain therapy instruments proven to promote health³⁰	Harmful electromagnetic fields from certain places on earth and technical installation not meant to promote health.
Absence of infections	Certain infectious organisms may trigger already existing parasites. One infection leading to another one.

The list may be expanded. You may notice I have not included diseases as leading to a weak immune system. Diseases are in themselves the manifestation of a weakened immune system and the ongoing work of already existing parasitic organisms. Having for years sworn by the Korzybski advice: The Map is not the terrain! I am well aware that this model presented so far is not the ultimate map to reality; but it is a better map the older maps presented thus far in terms of practical results when navigating by the facts that built the map.

The different overview.

The new map is more complex than older maps. The older maps were built on an oversimplification that could be written as a simple equation:

$$\text{Lyme} = \text{Diseased Host} + \text{Borrelia present}$$

If there is a recent history of tick bite followed by disease and then Ig E and later IgG antibodies in the blood is found by ELISA and Blot testing, Borrelia is verified. If verified, then treat host with 2-4 weeks of Doxycycline. If patient doesn't get better the disease is "something else" even considered a mental disease!

The new map is more complex:

Lyme & related diseases = Host with reduced immune –competence + some form of the polymorph Borrelia + other coinfection microbes.

There may be a recent history of tick bite or not as in case of healthy carrier turning positive when immune-competence is reduced. Immune testing may (seropositive carriers) or may not be positive (seronegative carriers); but live blood analysis in high resolution ultra-dark field microscopy enhanced by Bozsiik Dual Dur method is usually positive (but even this may fail).

Therapy results will always *include immune strengthening therapy*; but antibiotics may or may not be added, depending on the severity of the case. In my own case I never used antibiotics due to a simple reason: no diagnosis was given for my neuroborreliose in the seventies; I had to rely solely upon immune strengthening therapies and was miraculously healed after years of struggle. Looking back I might as well have ended up in a wheelchair or an institution for mentally deranged if it had not worked! Due to logic and reason I always recommend antibiotics when needed.

Increasing immune competence by focused pulsed electromagnetic fields.

Therapy is about one thing only: survival of the fittest! It is pure, simple predatory Darwinism. Only the strong shall survive; such is the law of nature. No benevolent God to help you. I buried mine when crippled by disease. What helped were the presence of knowledgeable doctors; including my own plus moral and mental help from my present wife and her family.

Over the years Borrelia became a warzone created by ignorance of some leading members. Long term antibiotics gradually fell out of favors of the leaders of my league. Some doctors even lost their license trying to extend the cure beyond the recommended 4 week cure. So after some years what was left was to increase immune competence. I have listed some of the methods for enhancing immune competence.

Some Immune-enhancing factors³¹

Method	Proven actions
Vegetarian nutrition and juicing	Phytochemicals, phyto-antibiotics, minerals, vitamins, free of toxins
L- arginine (proArgi9+ the chosen product)³²	Increases production of Nitro-gen-oxide proven by Nobel prize 1998 to enhance immunity
High dose vitamin C³³	20 proven immune enhancing effects
Silver-Shark-Oil (a small fish 1-2 pounds often found in trawls of shrimp fishers)³⁴	Reduces the levels of pro inflammatory prostaglandin 2 and increasing the levels of anti-inflammatory Prostaglandin 1 and 3. Contains immune-enhancing squalene.
Certain medicine plants³⁵	Antibiotic and immune enhancing phytochemicals.
Electromagnetic fields³⁶	Known to increase immune activity and to heal a number of diseases
Pulsating LASERs³⁷	Activating immune cells, pain killing
Acupuncture	Activating immune cells, pain killing
Healing / Placebo /Hypnosis³⁸	Therapies known to reduce stress and thereby increasing immune response.
Hemisync Soundwave therapy according to The Monroe Institute, Virginia³⁹	Enhanced brain hemisphere synchronization using patented sound technology causing rapid and deep delta state hypnotic states, main action stress reduction and immune enhancing increased by simultaneous positive imagery

You will notice that most of these therapies although proven are classified as alternative by industrialized medicine, even if some are recommended by Nobel Prize winners such as L-arginine therapy and Nutrition. However names are relative yet not always relevant. So is training to reduce blood pressure alternative to beta-blockers and diet therapy to treat obesity is alternative to obesity surgery. Better to focus on results than names. If getting hung up on methods instead of results science will end up in a dead end street discussing correct actions instead of probing result oriented actions.

Immunity and electromagnetism.

The electromagnetic nature of life is a basic knowledge in physiology when first year neophyte students of the natural sciences are taught from every lecturer around the globe that all cells on the planet are polarized. There is a high electronegativity in the inside of the cell relative to its outer surface sustained by so-called ion-pumps pumping Sodium out and Potassium into the cell. The Na/K pump is the life sustain "breathing" of the cell membranes without which the cell would eventually die when the interior cytoplasm reaches the same charge as the outside making the average -60 milli Volt approach zero; When 0 milli Volt potential difference is reached the cell will die.

With a cell membrane thickness of just a few nanometers the electrical vector Volt/meter over a cell membrane is considerable. The total sum of vectors in a living cell will however be small because the individual vectors are such that cancel out. However a small vibration in the cell geometry and a cell may vibrate and emit an electromagnetic field and in a living being with millions of cells the field may be measurable with even simple equipment.

What drives the Na/K pumps in the cells is the ATP known as the energetic currency of all life. The ATP molecules are made from glucose or fatty acids and through a complicated process known as cell breathing these substances are stripped from their high energy electrons that are coupled to Phosphate and turned into ATP. When ATP reaches any place in a cell where energy is needed, as with the Na/K pump ATP gives off high energy electrons; in other words even energy delivered in the cell is itself electrical! By thus analyzing each process in the cell there is no process in the cell that is not electrically charged with either + or - electricity and thereby creating millions of polarized (+ and -) units interacting electrically. All moving and vibrating charges generate magnetism from the living cell of the most primitive monera (unicellular organism) to the largest animals on earth consisting of trillions of cells. Beings are generating and emitting pulsating electromagnetic fields and interacting and influenced by such fields which is actually everywhere in nature.

Groundbreaking works of pioneers in the field over the last century such as professor George Lakhowski (France), Nobel Prize laureate Szent Györgi (Hungarian-American), professor Harold Saxton Burr (USA), professor Hans Nieper (Germany), professor Fritz Popp (Germany), professor Picardie (Italy), professor Dejan Rakovic (Serbia), professor Jim Oschman (USA) to mention just a handful out of thousands of researchers who have investigated bio-electro-magnetism, they all agree: Life is much more an electromagnetic phenomena than a chemical one. There are two sides of the coin: one cannot exist without the other⁴⁰!!

In professor Aleksandr Petrovich Dubrov's (USSR) groundbreaking work *The Geomagnetic Field and Life* (1978) on the electromagnetic nature of the biosphere and the interaction between every conceivable living organism and the earth /atmospheres electromagnetic nature 1228 peer review works are quoted⁴¹. Amongst works quoted are scientific works done by NASA and recognized American institutions; including works done by the military both in USA and USSR. How the knowledge of bio-electro-magnetism and geo-magnetic fields have totally escaped the medical community is yet to be explained in a manner to be believed.

Because life is bio-electro-magnetic or even simpler life is an electromagnetic phenomenon interacting with the geomagnetic fields and even probably also created by such fields, it opens the fact that is so basic that it is universal law of science:

What is in itself producing electro-magnetic field in nature can be influenced by electro-magnetic fields of the same nature.

To clarify: living cells unicellular or working in ensemble in a multicellular organism has been shown to produce a host of pulsating electro-magnetic fields ranging from DC (direct currents) to very complex trains of impulses that ranges into the Mega Herz (MHz) range and from there into invisible infra-red light (photon range) and further into ultra-violet range and even beyond the so-called scalar fields and from there into

quantum range oscillations. All such emissions have been registered but since fields from living entities are very complex and very weak, some even below the threshold of modern day amplifiers with noise- levels down to -120 dB, much of what is going on is shrouded in noise and only understood as to how biological processes are observably altered when living entities are exposed to controlled fields emitted from oscillator circuits driving antennas or photonic sources. By studying how entities react (microbes, plants, fish, birds, four legged animals, and biped species including humans) and measuring their various parameters under varying conditions one can assume some of the complex processes going on in the depth of biological entities.

By studying various frequency bands we today have ample data as to how we may influence organism with biologically meaningful signals of electromagnetic nature. Since our study was to investigate the effects of fields on people with compromised immune-competence we naturally had collected some data as to previous experiments of the same type.

Some examples of how electro-magnetic fields influence immunity:

The pilot study was to study how focused pulsed electromagnetic fields influenced immunity of subjects (also called volunteers) with PLDS. It is relevant to mention a few studies on Electromagnetic therapy fields and immunity and infections.

More electromagnetism and immunity

Study	Study	Results
Gomez-Ochoa I et al⁴²	Effects on cytokines	Decrease pro inflammatory cytokines, increase anti-inflammatory cytokines
Viale et al⁴³	Effects on NFkB	Increase anti-inflammatory NFkB
Centre iMEDIS, Moscow⁴⁴	Effects on asthma	Positive improvement of 985 patients out of 990 treated.
Schumacher P⁴⁵	Effects on allergy	83% patients became symptom free
Yang Jinzh et al⁴	Controlled study of 87 allergy patients	Similar effects as steroids but without their side-effects after 6 months therapy
Osadchay et al⁴	Effect on immune cells in 50.000 blood samples in vitro	Increased the immune activity and number of phagocytic immune cells
Sakharov D et al⁴⁶	Effects on mice immune system damaged by radioactivity	Restore normal immunity in immune- defective mice Damaged at Chernobyl are
Wallezek Jan⁴⁷	Electromagnetic fields proved to influence immune cells	Mechanisms of actions explained by top USA physicist
Yunzhong Nie et al⁴⁸	Electromagnetic fields proved to influence immune cells	Electromagnetic therapy can help immune cells to fight cancer in a better way

These are a few examples from a rich literature. In professor Alexander Dubrov's groundbreaking book on geomagnetism: *The Geomagnetic Field and Life* (Plenum Press Books, NY, 1978) 1228 scientific works and books are quoted proving electromagnetic fields interact and steer biological processes.

Mapping the terrain

The experiment set up.

5 volunteers who all had been through conventional Lyme Therapy by either hospital or the social health service system followed a state instigated protocol for diagnosing and treating Lyme disease. All volunteers suffered from PLDS (Post Lyme Disease Syndrome) and agreed to partake in the experiment. All continued to use the social health system during the study. The volunteers were exposed to ONDAMED Therapy using focused electromagnetic fields. The device was operated by a Norwegian therapist, an electrical engineer who was educated by the Ondamed Company in Germany who used the Standard Treatment Protocol incorporating the Biofeedback method. In this two stage investigation the therapist exposed the volunteers to ONDAMED's four modules for a total of 10 weekly treatment sessions. Each volunteer filled out an extensive questionnaire as to how they experienced the exposure. The content of these questionnaires was made known to us two months after the experiment was finished.

We checked the volunteers before their treatment exposure, as well as after the 5th and then their 10th exposure. We used three methods of testing:

- Electronic node testing according to a protocol developed by Reinhard Voll, M.D. in Germany. Node testing had been used by myself in a previous peer review research for Ecoflow company in UK testing professor Danev's electromagnetic shielding device in 2004. A copy of this experiment is available from www.dr-overbye.no website at a cost of 100 Euro explaining how such testing is done and the science behind it.
- Ultra Dark Field Microscopy with 1000 x optical magnification and 20X video-magnification, giving a total 20.000X digital magnification on screen. Blood was analyzed according to standard medical procedures investigating Red and White live blood-cells and study of in between cellular blood serum morphology. The microscope was lent us by a local industrial company-
- Testing of stress levels and blood circulation using HRV-EKG belonging to Veiviseren Forlag.

The testing was done in Arendal *off duty* as a busy physician, lecturer, author and publisher of scientific books, which also include biophysical research work assignments by various companies or individuals.

Meridians as a relevant measuring system for the biological system.

Appendix I deals with the science behind the meridian system for those with deeper interest and it is highly recommended to be studied. In this part of the description it is enough to state science of energy systems of carbon based life forms need certain scientific systems to measure their performance. One out of many ways to measure the performance as pointed out by Jim Oschman, Ph.D. in his book "Energy Medicine in Therapeutics and Human Performance" is through the meridian system. Does such a system of measurement work in practice? In other words is it such that when we measure the electromagnetic properties of the meridians that we may conclude relevant understanding of the working of the human body-emotion-mind system? And is it so that the understanding we get can be transformed into therapeutic actions? And can these be proved to help the patient to improve his/her health? And will such improvement be reflected in a normalization of the meridian-energies? The answer is: yes it can.

The best proof ever that all these questions can be answered with an unanimous yes is the Russian diagnostic system for Space Medicine called Prognos⁴⁹. Prognos is based on empirical studies of more than 13 million patient consultations over the last 20 years! The accuracy of the diagnostic process is better than 90%. The system is still in use by cosmonauts in the international space station and therefore also used by the other astronauts from other nations. In the less liberal system of the West when it comes to use of energy medicine this astonishing fact is not openly spoken about. However I have seen it in work and have for 10 years used an equivalent German system and can ascribe to it its efficiency both as a research tool and diagnostic system in daily work with patients.

Meridian-data interpretation.

All volunteers had positive verified Lyme-Borreliose in the case history and were checked out of the National Health System told there was no further therapy within the system. To simplify the reading of the results we have omitted data within the normal range and included only data out of the normal range. Name for measurement nodes are identical to those developed by German researcher Doctor Reinhard Voll. Names are self-explanatory and not to be taken literally but somewhat metaphorical since they refer to the electromagnetic status of meridians, and not organs! However a certain meridian can be influenced by the status of⁵⁰:

1. A specific internal Organ.
2. Endocrine glands
3. Certain major Nerve plexa (in Asia known as Chakras).
4. Certain joints that the meridian passes on its course over the body.
5. Certain muscle groups.
6. Certain lymph and blood vessels.
7. Certain associated tissues.
8. Certain emotional reactions.

What should be weighted as most important in each case depends on the person in question. Meridian analysis is truly individually oriented.

Data-collection from volunteers.

Data ranges as follows:

Category I: Within normal range and stable readings meaning in apparatus terms: on a scale from 0-100 units the reading has to be anywhere from 45-55 and it must be stable for 20 seconds. This indicates a normal function of all functions related to that meridian (see above)

Category II: readings are either below or above normal range; readings are stable for 20 seconds. This indicates a simple under function (<45 units) or an over activity (>50 units) in one or more functions related to the meridian. Such readings usually indicate problems of psycho-somatic nature.

Category III: Zeigerabfall= the needle on the old style micro-Ampere -meters used in the first equipment used by Dr. Voll could not record a stable value when the probe was applied to the point (node) on the body while another part of the body was connected to "earth" = zero potential. Dr. Voll himself found out after 20 years of measurements that such unstable readings where the value changed abruptly or slowly from a high value to a much lower value corresponded to a *health problem in need of care*, whereas Category I and II usually can be considered as *temporary disturbances* in the system. Based on 10 years of electro-acupuncture measurements, our own controlled experimental peer review research⁵¹, interview with representative from the Prognos electro-diagnostic device used by USSR space medicine (2002 in Spain) and professor Portnov (USSR electro medicine, military research, acupuncture research etc.), the following conclusions can be made:

A Zeigerabfall is present on the Voll-endpoints on a meridian (see appendix I) when there is a corresponding tissue problem in the course of the meridian or one of the five factors influencing it (See appendix II). In clinical terms this means one or several of the following conditions.

1. Scar tissue in course of the meridian
2. Joint dysfunction where the meridian passes
3. Vertebral column subluxation in a level known to influence the specific meridian.
4. Cranial and/or tempo-mandibular joint problems
5. Dental problems in need of dental care
6. Infection /inflammation of tissue, corresponding organ, joint or vertebral column
7. level
8. Cancers/ tissue degeneration.
9. Outer toxic chemical or radiation effects

Clinical experience has proved that patients will not improve unless the primary problem is taken care of with proper medical intervention; ONDAMED's focused electromagnetic field therapy, osteopathic/chiropractic and even surgical therapy when needed.

Data set of volunteers before and after ONDAMED therapy.

Category	Before therapy	After Therapy
Category I: Normal	25%	52%
Category II: Psychosomatic	70%	48%
Category III: Zeigerabfall; serious disturbance	5%	0%

This table can be read as such: before and after readings is the average number of points in each series of measurements of total 40 points tested for each person that falls within a certain category. So 5% means that in average each person had 2 deviant points with *Zeigerabfall*. After 10 sessions with exposure to ONDAMED's therapeutic FOCUSED electromagnetic fields there were *no Zeigerabfall deviant points* on either volunteer, which is to say that ***“serious” disturbances in the body were put to rest for the time being. This is a very optimistic turn in the experiment*** and should ignite further investigations.

Category III points that were normalized.

System	% of Volunteers with corresponding Cat III Voll Points	Comment
Lymph/immunity	Lymph 20% Allergy 20%	PLDS has weak association with allergies
Digestive system	Spleen 40%, Small Intestine 10% and Gallbladder 40%	PLDS has a medium association with digestive problems
Airways	Lung 20%	PLDS has a weak association with lung problems
Backbone/pelvic problems	Urinary bladder/spinal column point 100%	PLDS has a strong association to problems related to these measurements which proved to be upper cervical problems plus Hashimoto disease!

This table can be read as such: This in detail analysis of the category III points is indeed interesting. All volunteers had category III readings on the professor Nakatani/Dr. Voll point called Urinary bladder endpoint/ Dr. Voll urinary bladder point that is identical to the Chinese Great Sun Yang meridian that starts by the eyes and runs the paravertebral down to pelvis and then along the hind legs to the little toe. This point will have deviant readings whenever there is a spinal column/pelvic/brain problem. We checked each volunteer for this problem and found that 100% of them had an upper cervical subluxation that cleared during therapy!! Another correlate was that all volunteers had Hashimoto disease, an autoimmune disease of the thyroid gland. According to Hungarian Lyme expert Dr. Bela Bozsik the Borrelia parasite is known to have antigens

on their surface that makes the host's immune system produce antibodies attacking the host's own thyroid gland. The logic according to parasitology is that the parasite weakens the host so that the host becomes more livable for the parasite. The result in this case is that all volunteers ended up with degrees of hypothyroidism and chronic fatigue syndrome.

Heart Rate Variability Stress test.

Heart Rate Variability test is a mathematical procedure whereby one investigates the variation of a successive series of heartbeats recorded by a simple electro-recording device; either three point ECG registration with electrode placed on the chest or a simpler finger-electrode. Both the shape of the curve and the variation of frequency is analyzed. This test was done by the author's private research-equipment, which I have used for some years now for investigation of patients' autonomic nervous system. Whereas ordinary ECG will tell the doctor about certain pathological changes in the heart itself, an HRV analysis will tell us about the autonomic nervous system function. HRV in its more basic type is therefore a function test and an autonomic nervous system test, not a diagnosis of pathology of the heart muscle itself. For more information read Appendix II.

Average HRV-ECG readings for volunteers suffering from PLDS

Measurement	Before therapy	After Therapy
LF: Sympathetic activity number (5,9-8.0)	8,1	6.6
HF: Parasympathetic activity number (3.8-7.0)	6,6	5.8
LF/HF: autonomic nervous system balance ratio (0,6-2.4)	1.22	1.17
Heartbeats per minute (59.5-95.5)	73	70
Stress tolerance number (23.5-95.3)	80	53

How to try to understand the data: HRV is a science with many different opinions and a science in evolution. When the heart of any person contracts it does so under the influence of many factors. During one recording the heart rate (difference between two successive beats) will not be constant as if often assumed by medical personnel not acquainted with how the heart really works. Contrary to common belief the interval between two beats measured in seconds will vary between a lower limit and an upper limit typical for the individual and the situation. When a reading is finished there will be distribution of heart beat intervals that has a normal distribution and on basis of this we calculate Standard-deviation (see appendix II) which tells how much spreading there is of interval time. The more variation there is in the heart beats during testing the higher the SD-NN. It has been known for decades that SD-NN decreases with age; in other words the heart becomes less lively and thus more "sedate", preferring to keep a more stable frequency. A more stable pulse over time with fewer variations from beat to beat is thus a sign of exhaustion and age. If SDNN is lower than the age average you are in for early "ageing" or simply exhausted.

Since all volunteers were women with average age 50 the SDNN was expected to be 42. However, it was 54 before therapy which is too high for the age group indicating a higher cardiac activity⁵². Since none of the volunteers were healthy or trained it was taken to mean that the subjects were all under stress due to their condition. According to research done by Ada Zohar⁵³ at Ruppim Academic Center in Israel a higher than normal SDNN corresponds to people feeling stressed and aggressive. This fits well with how the volunteers felt by experiencing what they unanimously described as having being “neglected by the health system” and told that their problems were mostly imaginary or that there was no hope of improvement.

After therapy was applied SDNN fell to 53, which is closer to the normal for the age-group, meaning less stress. At the same timer the LF which is connected to sympathetic stress reactions, also fell with 1.5 units which is significant! There was a small change in corresponding parasympathetic activity. All the volunteers became more relaxed during the therapy period.

	-2SD	-1SD	+1SD	+2SD
LF		6.6		8.1
HF			5.8	6.6
SDNN		53		80

In this simple table one sees the change by an eye glance. Before therapy all readings (red) are in the upper standard deviation above mean which means a highly stressed situation. After therapy parameters (green) drops to somewhat below mean in the 1st Standard Deviation domain. Situation is thus improved: less tension, less aggression, less fear, a more positive outlook.

Microscopy

Use of Dark Field Microscopy has been the golden standard in spirochetal research ever since Otto Obermeier discovered the spirochete in 1868 that was eventually re-baptized Borrelia 40 years later after having been called Spirilla Obermeier or Spirilla gallinarum for two generations⁵⁴. The golden age of spirochete discoveries from Obermeier onwards were all built on the evolution of the dark field microscope which at the beginning of the 20th century reached a 1000 diameters optical magnification with a resolution (ability to see two objects as apart) of 1 micron. Today a good Olympus BX50 dark field microscope can magnify 2000 diameters optical and reach a resolution of less than 1 my. Since a Borrelia may vary in size between less than 7 and up to 15 my, it is easily seen by dark field microscopy.

So what is the real benefit of a dark field microscopy (DFM)? One can study live specimens. One can actually see the spirochete swimming in the blood plasma, film it with a proper CCD- video camera, transfer the live film to a digital analysis program and calculate a mathematical formula for the movements and on basis of the movement recorded develop a hydrodynamic theory how a spirochete is built in order to move as it does.

In live DFM microscopy there is thus no doubt about what a spirochete is. If we however kill the blood samples with chemical to add colors to the blood specimen and use an ordinary light-microscope numerous artifacts form that may indeed look like a dead spirochete. Stained specimens cherished by ordinary labs in medicine are a producer of useless artifacts and cannot and should absolutely not be used to study spirochetes. More than 150 years of hard core evidence by researchers leave little doubt about this.

However due to recent years of what is called a "Borrelia-war" ignited by laboratories that do not use DFM, but only serum testing, DFM the "golden standard" of spirochetal science has fallen out of grace by lab-personnel. In just a decade DFM seems to have been "forgotten" and instead picked up by the "integrative medical community" as I have witnessed in Europe, that unfortunately lacks the scientific education of how to use DFM properly. By producing low grade and amateurish video films of live blood and putting them on the internet, amateurs have given the professional community a wrong impression of the value of DFM.

My friendship with Dr. Bela Bózsik from Budapest who has tested more than 100,000 Lyme disease patients with DFM has totally roved the last shreds of whatever skepticism I might have had before and therefore I have used it for some years now together with immunology to identify spirochetes in blood.

DFM can identify possible spirochetes; but you need immunology to verify to which species they belong. Knowing there are also less harmful spirochetes like Leptospira Bucchalis that resemble Borrelia but stem from your mouth one must be on guard not to make false diagnosis. Due to my work situation I no longer perform DFM with my patients, and only utilize it for research.

Below are our findings together with laboratory results from the volunteers taken in the beginning of the ONDAMED pilot study:

Parasite load of the volunteers:

Parasite	Sero identified before study started	Seen in DFM before therapy at our lab.	Seen in DFM after therapy at our lab.
Borrelia	100%	40% : motile spirochetes seen moving	20%: motile spirochetes seen moving
Mycoplasma pneumonia	40%	20% identified in RBC	0% Identified in RBC
Chlamydia pneumonia	60%	Not identifiable with current DFM method	Not identifiable with current DFM method

Discussion: Parasites had been identified by serology before the volunteers entered the study. Of course all had antibodies to Borrelia at some point; therefore the value is 100%. Spirochetes were seen in two patients, one with PLDS and one with ongoing Lyme that

had been undiagnosed for a long time by her own doctor before she entered the study. In the latter serology confirmed the diagnosis.

In the volunteer who had PLDS, the spirochete lingered on despite her having been on several rounds of antibiotics prescribed by her physician. She was a special case with immunodeficiency that might explain her problem of not responding to antibiotics. Strangely enough she had no serious health problems when entering the study; she joined the study mostly out of curiosity. In her the spirochete did not disappear.

One patient though needs a comment: she had been seriously ill with *Borrelia* when she entered the study and had not taken any antibiotics before she entered the study. She was on a preliminary immunotherapy to prepare for a later antibiotic treatment. She also had changes in blood including *Mycoplasma* as seen in DFM, which was also verified by serology. During the study both spirochete and *Mycoplasma* changes disappeared; but her health problems did not improve much. *Mycoplasma* was confirmed by serology.

It should be noted and critical readers should be reminded: An ordinary DFM-microscopist such as myself cannot in the strict sense see *Mycoplasma* or *Chlamydia pneumoniae* microbe itself; but changes in red blood cells can be seen that are typical for the parasites. Final identification needs serology.

As for number of immune cells: granulocytes and lymphocytes did not change before and after the therapy, neither did the red Blood Cell count. It is possible however that LTT⁵⁵ and fluorescent microscopy could have verified immune-cell activity become more active, but this was not preformed due to the high costs of the tests.

Discussion of results

The known: *Borrelia* is a human blood parasite that may also attack tissues. It is pleomorphic with many forms, most of them totally dissimilar to the spirochetal form. *Borrelia* as all parasites has the ability to evade the immune system by various means such as shedding of the outer cell wall, vigorous movements to shake off immune globulins and the ability to live inside immune cells that were meant to track them and kill them. *Borrelia* can also hide within a wall of "slime" so that they cannot be reached by immune cells or they simply drill themselves into tissues where immune cells cannot reach them. As if this is not enough; *Borrelia* can turn off the production of Immunoglobulin M, the body's primary defense against the intruder. Add to this *Borrelia*'s ability to develop antibiotic resistance being superior and quick. How do we expect to eradicate it?

I am not against proper use of antibiotics as a primary weapon; but it is not the long run therapy. The long run therapy must be to use the oldest weapon on earth the body's own immune system. In this experiment the idea was to try out the use of electromagnetic fields to enhance immunity to see if one could increase its activity to have an impact on Lyme patients. Due to ethical consideration we did not choose to treat patients with electromagnetic therapy instead of antibiotics, so we instead chose volunteers who had already been treated with antibiotics but still suffered symptoms known as Post Lyme Syndrome.

Common findings in all patients prior to the study were that all had positive Borrelia serology which was the inclusion criteria. 40% had Mycoplasma and 60% had Chlamydia Pneumonia IgG immunoglobulins. Since IgG positivity can mean either a finished off infection or an ongoing chronic infection it was no surprise that 20% still had Mycoplasma in their blood as judged by microscopy when the study started. Another surprising fact was that all volunteers had developed Hashimoto autoimmune thyroiditis during their Borrelia infection; a recent discovery verified by world renowned microscopist Dr. Bela Bozsik. Hashimoto disease gives rise to fatigue and exhaustion and a number of other low energy symptoms, from which all suffered! Indirectly these symptoms were caused by Borrelia, but the direct cause was Hashimoto disease ...as a consequence of Lyme-Borreliose in the past.

Patients filled out questionnaires before, during and after the therapy with the ONDAMED device and its unique Biofeedback method as administered by therapist in Oslo. The volunteers visited our lab 300 km away to be tested with EAV (Electro-Acupuncture device according to Dr. Voll) which is identical to the Russian Cosmonaut diagnostic program using a similar machine as we use (but not identical). They were also tested with HRV- ECG used to evaluate stress and with dark field microscopy to evaluate immune cells and possible Spirochetes and other microbes.

The results were as such: All volunteers had pathological Voll measurement but these disappeared during the study period.

Pathological findings were Lymph/immunity indicators, air-way disease indicators, digestive system indicators and indicators for pelvic/backbone disturbances. Upon clinical investigation and manual testing of the neck, all volunteers had upper cervical dysfunction some due to neck injuries. We did not go further with this but an interesting project would be to investigate immune problems due to neck issues which possibly could explain a reduced ability healing from Borrelia after a course of antibiotics.

Testing with HRV-ECG showed a marked reduction in indication for inner stress and anger! Volunteers simply became more calm and organized during the study period as verified by questionnaire. Obviously the magnetic field therapy plus the care for the sick which is a main point for the ONDAMED philosophy paid off in reduction of stress which we know enhances immunity!

Dark Field Microscopy showed live spirochetes in two of the five volunteers; in one they disappeared during the therapy sessions. This does not mean they disappeared for ever, but their activity seemed to be greatly reduced so that finding them in peripheral blood was less likely. Apart from this Mycoplasma changes disappeared in one of the volunteers; if they will re-emerge we do not know; but they disappeared in the same patient where the Spirochetes disappeared; however the patient herself did not improve much symptomatically.

As for red blood cells and immune cells counts there were small and insignificant changes. Due to limited time we have not yet gone through all 200 dark field pictures in detail. In one patient there was an immunodeficiency with low lymphocyte cells and this did not change. *We did not check for the activity of the immune cells which demands an expensive LTT test plus immune fluorescence immune cell phagocytosis test; a future project absolutely in demand !*

Having worked with Borrelia for some years I did not expect focused electromagnetic field therapy provided by the innovative technology **ONDAMED** cause so much change **within such a short period of time, however even more surprising were the significant changes in the autonomic nervous system, reduction of stress, disappearance of pathological bioelectrical Voll indicators as also used by Russian cosmonaut program, reduction in internal anger /frustration as evaluated by HRV-ECG and the surprising disappearance of Borrelia and changes associated with Mycoplasma/chlamydia pneumonia from blood for at least a period in one volunteer.** We do not expect this disappearance to be permanent; but what if therapy was applied on a regular basis for months or even years. What then? One can only extrapolate the strong possibility of overcoming Lyme symptoms and living a healthy life. There are many anecdotal case reports from physicians and patients worldwide confirming this theory.

Closing the pilot project I will conclude this much: Something occurred with the autonomous nerve system and body energy that influenced the volunteers' experience of discomfort while improving their health conditions.

As always there is the question of placebo used in diminutive manner by die hard skeptics, but according to the best of knowledge as expressed by Joe Dispenza in his major work *You Are The Placebo*: placebo is a neuro-endocrine and epigenetic change for the better. No true healing can take place without some according to all serious placebo researchers; so if there was some it is more than welcome.

What evoked it? The positive attitude of the ONDAMED therapist, the device's focused electromagnetic fields, the location of dysfunctional tissue areas which were therapeutically stimulated, the positive attitude of the project, the personalization of the focused electromagnetic fields unique to each volunteer allowing to fine tune the therapy to the need of the volunteer? Or was it the totality of it?

Then how much was due to the device itself? I saw changes that I normally do not see from placebo alone: like disappearance of Voll measurement pathology similar to that seen with expert level acupuncture, HRV-ECG changes as seen during psychotherapy, meditation or hypnosis. As for Dark Field Microscopy changes were minimal in 80%, **but dramatic in 20% and such changes are only seen with antibiotics as far as I know.**

Ondamed GmbH - Germany
www.ondamed.net

APPENDIX I: ONDAMED Technology

Focused Electromagnetic Field Stimulation combined with Biofeedback

APPENDIX II: MERIDIAN ANALYSIS ACCORDING TO DR. VOLL/ZAGRIADSKII

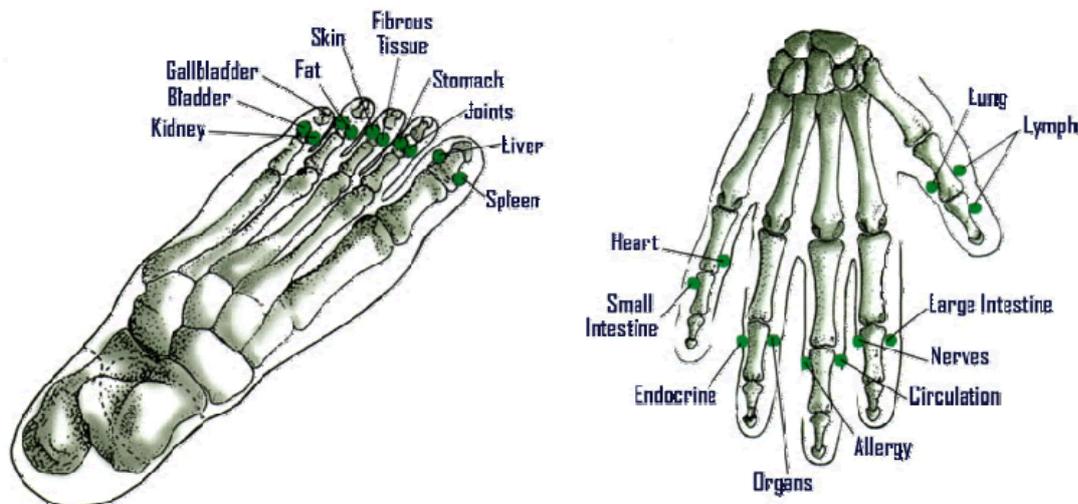
Dr. R. Voll developed a most useful tool for scientific analysis of the human body using Galvanic Skin Resistance (GSR) measurements of acupuncture points at the fingertips and toes. The method used in this experiment was based on the Voll Electro Acupuncture method using Holimed equipment developed in Germany⁵⁶. The first one to do this was however not Voll but Professor Nakadani Yoshio⁵⁷ who as early as 1953 started to do systematic GSR-measurements at fingertips and toes. To explain the results he developed together with Professor Sasagawa Kugo "The Theory of Ryoduraku" meaning literallyly "stick to the good lead/method/path. An important part of the Ryoduraku therapy of healing was the use of electronic stimulation of acupuncture-points. The other important part was the construction of the Neurometer in 1951-56 for measurements of acupuncture points.

Dr. Voll refined the method together with engineer Pitterling in Germany in the 1960-ies and over the years it evolved to a number of atlases showing connection between points and inner structures of the human body. The method to evolve to several such atlases is indeed very simple. Given enough measurements on healthy, young people with a certain type of GSR-meter/apparatus one establishes types of readings and averages and their 95% Confidence Interval also called "normal value". Deviation from the normal will then indicate pathology. Measuring enough sick people with already known problems defined by other methods over time anyone can establish a correspondence between a point and a set of health problems/tissue problems/organ problems/nerve problems etc. It is all plain statistical analysis of correlation between a point and a set of pathological changes in certain structures of the human body.

To date the most comprehensive statistical analysis done so far was started in the former USSR under the supervision of Professor Zagriadskii⁵⁸. The tests ran for 15 years and more than 12 million tests were performed on 1,500 healthy and 22,000 sick people. Based on the enormous amount of data surpassing any consistent tests so far for any medical procedure on the planet, the Russian team developed an apparatus called Prognos together with a software program for statistical analysis of data. This apparatus was then implemented in the USSR space program under the supervision of Cosmonaut Dr. Poljakow⁵⁹.

The Russian program confirmed the following:

1. There is a correlation between points and corresponding parts/structures of the human body.
2. The best way to explain the correlation is to use the ancient Chinese meridian theory.
3. The type of GSR readings on a certain point says something about the type of damage/pathological change in the corresponding structure.
4. Influencing the pathological points/meridians influence and bring forth normalization of the points and the meridian GSR, and also normalizes and heals the pathological changes in the corresponding structures of the human body.



Anyone interested may get a complete article on bioelectronics and acupuncture from the author's website www.dr-overbye.no.

APPENDIX III: HEART RATE VARIABILITY ANALYSIS

The heart rate variation is analyzed by a method called Fast Fourier Analysis. FFA is based on the mathematical analysis of vibration of strings done by 17th century French mathematician Fourier. Surprisingly his analysis of vibrating strings showed that any tone is composed of a fundamental vibration called the fundamental frequency plus series of increasingly higher notes called overtones. The strength (intensity) of the fundamental tone (the audible expression of a vibrating string, air column or object in motion) plus its unique series of overtones that are multiples of the fundamental tone will make the string of a string instrument or the vibrating column of air in a brass instrument or woodwind instrument sound in a particular manner.

The note C on a flute and the same note C on a clarinet or the note C on a guitar will sound totally different even if their fundamental is mathematically identical simply due to the number of overtones and their individual strength compared to the fundamental note.

Later on it was proved that Fourier analysis could be applied to anything in the universe vibrating; as for example the heart. The heart does not exactly vibrate as a string, but the time between two contractions can be analyzed in the very same manner as a vibrating string! The interval changing seems to be composed of three various changes (vibrations); a low Frequency (LF) change, a more rapid High Frequency (HF) change and a very Low Frequency (VLF) change. These changes and their interpretation are such:

1. HF= this rhythm is caused by the nerve impulses from the Parasympathetic Nervous system; a part of the Autonomic Nervous system that induces relaxation, sleep but also takes care of the activities of the lungs, digestive system, urinary system and the heart. A high Parasympathetic activity causes the heart rate to slow down.
2. LF= this rhythm is caused by an activation of the sympathetic Nervous system. This part of the Autonomous Nervous System has the opposite effect on the internal organs and the circulatory system. It is activated for the basic fight, fright and flight reactions; the ultimate survival activations. A Sympathetic Nervous system over-activity makes the heart rate to go up.
3. VLF= caused by higher nerve centers in the brain.

There is of course no pure Parasympathetic or Sympathetic situation; but the system works simultaneously; one system can dominate over another depending on the situation and on how hard/long they have been working. If highly stressed over some time the Sympathetic dominance will "burn out" and Parasympathetic will dominate getting people into a prolonged phase of fatigue and tiredness with slow heart-frequency.

If stress goes on even longer both systems will get exhausted and on the way down their balance calculated as LF/HF will change accordingly!

Modern HRV -ECG are sophisticated software systems, and even the cheapest you may buy for a few hundred dollars up to several thousand dollars even as high as expert systems costing \$20,000 which basically have the same HRV mathematical analysis. What differs is the conclusions one can draw from the basic mathematical routines.

References:

-
- ¹ <https://www.marxists.org/reference/subject/philosophy/works/ge/heisenb2.htm>
 - ² http://www.actionlyme.org/SASH_POLICY_PAPER_MECFS.htm
 - ³ Øverbye Bjørn : *Syk av flåttbitt (Sick from Tick bite)*, Veiviseren forlag, fevik, 2014
 - ⁴ Kolter and Maloy: *Microbes and evolution*, ASM press, Washington, 2012
 - ⁵ Jones KL et al: *Analysis of Borrelia burgdorferi genotypes in patients with Lyme arthritis: High frequency Of ribosomal RNA intergenic spacer type 1 strains in antibiotic-refractory arthritis.*
<http://www.ncbi.nlm.nih.gov/pubmed/19565522>
 - ⁶ see footnote 3
 - ⁷ Tracking the Source of Disease: *Koch's Postulates, Causality, and Contemporary Epidemiology*, <http://www.colorado.edu/Outreach/BSI/pdfs/kochs-postulates.pdf>
 - ⁸ Korzybski, Alfred (1994). *Science and Sanity: An Introduction to Non-Aristotelian Systems and General Semantics (5th ed.)*. Brooklyn, NY: Institute of General Semantics.
 - ⁹ McDonald A: *Cystic Borrelia and related Topic 1-2, a very good film about various pleomorphic variation of Borrelia*, https://www.youtube.com/watch?v=1ojq_2-HlNg
 - ¹⁰ *ibid*
 - ¹¹ McDonald AB *Round forms of Borrelia burgdorferi*. <http://alzheimerborreliosis.net/wp-content/uploads/2012/10/April-12-2012-PDF-Cystic-Borrelia-Manifesto.pdf>
 - ¹² Bozsik B: *Talk in Budapest 2013-15. Interview with author. Published in his book Sick after Tickbite (Norwegian edition only) but information of similar art to be found on the authors website: www.dr-overbye.no*
 - ¹³ MELISA and LTT-tests. <http://www.melisa.org/research-articles/melisa-and-ltt/>
 - ¹⁴ <http://www.nejm.org/doi/full/10.1056/NEJM198812013192203>
 - Reference to follow
 - ¹⁶ Markel Howard: *The real Story behind Penicillin*, PBS newshour, 27-9-13
<http://www.melisa.org/research-articles/melisa-and-ltt/>
 - ¹⁷ Cook C D: *Diet for a dead Planet*, The New Press, 2006
 - ¹⁸ WHO: *Antimicrobial resistance*, April 2015. <http://www.who.int/mediacentre/factsheets/fs194/en/>
 - ¹⁹ Zimmer C: *Parasite Rex*, Atrian Books, 2001
 - ²⁰ <http://www.mayoclinic.org/diseases-conditions/lyme-disease/basics/treatment/con-20019701>
 - ²¹ Øverbye B: *Syk av Flåttbitt (Sick from Tick bite)*, Veiviseren forlag, fevik 2013
 - ²² ILADS Guidelines. <http://www.ilads.org/lyme/treatment-guideline.php>
 - ²³ See footnote 21.
 - ²⁴ Kolter and Maloy: *Microbes and evolution*, ASM press, Washington, 2012
 - ²⁵ *ibid*
 - ²⁶ *ibid*
 - ²⁷ Hansen J W: *Arthritic manifestations after Borrelia infections. A Power Point lecture in Norwegian only*
https://www.google.no/?gfe_rd=cr&ei=Qw5BVqCuOoKA8Qf3mabYBQ&gws_rd=ssl#q=positiv+borrelia+test+på+sørlandet
 - ²⁸ Reference 1. Contains all relevant material, More relevant material on www.dr-overbye.no
 - ²⁹ Servan Schreiber D: *Anticancer - Prévenir et lutter grâce à nos défenses naturelles*. Edition Robert Lafont, 2007
 - ³⁰ <http://magnetterapi-sor.jupiter.aleo.no/wp-content/uploads/2012/12/intervju-dr.pdf>
 - ³¹ See also reference 17
 - ³² Stechmiller JC et al *Arginine Immunonutrition in Critical ill patients: a clinical dilemma*. S, *American Journal of Critical care*, 2004, 13(1)
 - ³³ Levy TE *Pirmal Panacea*, MedFox Publishing, 2011
 - ³⁴ <https://www.healthleadsuk.com/articles/shark-liver-oil.html>

- ³⁵ Buhener S: *herbal antibiotics*, Storly publishing, 2014
- ³⁶ Null G: Biomagnetic Healing, http://www.sld.cu/galerias/pdf/sitios/rehabilitacion-fis/biomagnetic_healing.pdf
- ³⁷ Kneebone WJ : *Immune modulating effects of Therapeutic Laser*, PPM
<http://www.practicalpainmanagement.com/treatments/complementary/lasers/immune-modulating-effects-therapeutic-laser>
- ³⁸ Albring A et al *Placebo effects on immuneresponse in Humans*. PLOIS, 21.12.12
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0049477>
- ³⁹ http://www.hemi-syncproductsandprograms.com/benefits4/immune_system.htm
- ⁴⁰ Øverbye BJ : *Frisk med Magnetterapi (health benefits from Magnetic Therapy) Norsk Magnetterapi, Notodden, 2005*
- ⁴¹ Dubrov AP : *Geomagnetic Field and Life*, Plenum Press, 1978
- ⁴² Gómez-Ochoa I, Gómez-Ochoa P, Gómez-Casal F, Cativiela E, Larrad-Mur L. *Pulsed electromagnetic fields decrease proinflammatory cytokine secretion (IL-1 β and TNF- α) on human fibroblast-like cell culture. Rheumatol Int. 2011;31:1283.*
- ⁴³ Vianale G, Reale M, Amerio P, Stefanachi M, Di Luzio S, Muraro R. *Extremely low frequency electromagnetic field enhances human keratinocyte cell growth and decreases proinflammatory hemokine production. Br J Dermatol. 2008;158:1189.*
- ⁴⁴ http://www.biomedis.ru/en/bioresonance_therapy_science.php
- ⁴⁵ Brügermann H: " Are there evidence based studies of effiancy of bioresonance therapy ? Fulda 2006, <http://www.bicom.se/Artiklar/are%20there%20evidence%20based%20studies.pdf>
- ⁴⁶ See summary in footnote 4
- ⁴⁷ Wallezek J. *The FASB Journal, Vol 6, October 1992,*
- ⁴⁸ Yunzhong Nie et al: *Low frequency Magnetic Fields Enhance antitumor Immune response.*
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0072411>
- ⁴⁹ Zagriadskii W.A.: *System Modell der Akupunktur und Meridiane ,Vorlag Gutenberg Universität, Mainz,1996*
- ⁵⁰ Walter D: *Applied Kinesiology: Synopsis, Systems DC, 1988*
- ⁵¹ Øverbye BJ : *The Quantum Report, Veiviseren Forlag, 2015. Can be ordered from the author for 100 Dollar.*
- ⁵² *International Journal of Scientific and Research Publications, Volume 5, Issue 7, July 2015 I ISSN 2250-3153*
- ⁵³ Open Journal of Social Sciences 2013. Vol.1, No.6, 32-39 Published Online November 2013 in SciRes (<http://www.scirp.org/journal/jss>)
- ⁵⁴ See reference nr.1
- ⁵⁵ See refernce nr. 1
- ⁵⁶ Krassnig R: *Die EAV aus wissenschaftlicher Sicht.*
<http://www.eav.de/fileadmin/pdfs/Wissenschaftlichkeit.pdf>
- ⁵⁷ Translation of Japanese explanation of Ryoduraku once written by Yoshio Nakatani sent to the author in connection with a book project in 1976.
- ⁵⁸ Zagriadskii W.A.: *System Modell der Akupunktur und Meridiane ,Vorlag Gutenberg Universität, Mainz,1996*
- ⁵⁹ Zagriadskii W A; *Die Medizinische Belatung des russischen Marsprojekts, Vortrag Medizinische Woche, Baden Baden, 1998*