# Lyme Borreliosis and its Biological Medicine Treatment

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Introduction from the Paracelsus Biological Medicine perspective:

In the last eight years, we have seen an enormous increase of patients with Lyme disease. These patients were in stage II or III and getting worse, even after intensive treatment, and many of them further progressed to neurological or autoimmune disease.

In light of recent scientific findings and due to our effective treatment at the Paracelsus Klinik Lustmühle, we believe:

- The Borrelia spirochetes are not the only cause of symptoms in Lyme disease. In progressive stages, it is a combination effect of toxic load, cell-wall deficient or partial forms of the spirochetes, and a significantly changed 'inner milieu' of the patient.
- 'Lyme' is a disease caused by organic and inorganic toxins.
- It is not the Borrelia that has to be treated, but rather the toxicity of the body. This toxicity is what up-regulates the bacteria into higher pathogenicity.
- Lyme disease is always combined with a significant lack of unsaturated fatty acids due to nutritional deficiency.
- Lyme disease is always caused by a significant disturbance of the intestines, toxin-producing intestinal bacteria (often Clostridia or Pseudomonas) and a lack of the basic detoxifying anaerobic intestinal bacteria (Lactophilus, Bacteroides or Bifidus).
- Antibiotic treatment is counter-productive (except perhaps for the initial two weeks in stage I).
- The treatment has to be VERY individualized, always including Pleo-Sanum remedies, heavy metal detoxification, orthomolecular medicine, rebuilding the intestinal flora and change of diet.
- The Borrelia spirochetes disappear with treatment.
- Lyme disease is like the 'Syphilis' of the 20$^{th}$ and 21$^{st}$ century and reacts well to homeopathic 'luesinic' treatment.

At the Paracelsus Klinik Lustmühle in Switzerland, we use a very intensive treatment lasting two to four weeks, followed by long term biological treatment for six to 12 months. Often patients are better within three to six weeks and it has been found that 60% – 70% of the patients are nearly healed within one to two years. They never get antibiotics, but rather follow the 'Dr. Rau's Way' intensive three-step treatment which includes:

- Detoxification
- Intestinal health
- Building-up of the inner milieu

The prescription and the strategy for the treatment is individualized, so please refer to the end of this article for the treatment options.

Toxicity:

It is clearly indicated that there is a relationship between environmental toxic load (mercury in the water) and incidence of Lyme disease (including the percentage of the Borrelia carrying ticks).

The following statistics shown that Borrelia is not the only factor causing the multi-level and multi-symptom disease:

In the area of the Rhine river (Switzerland and South Germany), about 1:3 ticks are carriers of Borrelia spirochetes. When an animal or human gets bitten, the chance of developing stage 1 Borreliosis is around 1:20-30. The others who get bitten do not develop an erythema migrans or have Borrelia antibody IgM. The question then arises: what happens to these others who are infected but don't get sick or at least have antibodies? Our answer: it depends on your immune system.

Only about 1:300 – 400 people reach stage 2 Borreliosis, which is a small percentage compared the number of the patients who had stage 1 Borreliosis. At this time, there are no known studies about the incidence of stage 3 Borreliosis. Antibiotics probably don't change the incidence of stage 2 and 3; therefore there is no reason to treat stage 1, 2 or 3 Borreliosis with antibiotics. It is important for treatment to support the internal milieu and the intestinal flora with Pleo-Sanum remedies. For therapy options, refer to end of article.

Test methods:

Of all tests for Borrelia and related antibodies, the most important are the milieu tests as conducted at the Paracelsus Klinik Lustmühle:

- DMPS heavy metal test i.v., 3 mg DMPS/kg body weight (normally 250 mg i.v.)
- Comprehensive stool analysis, including bacteria, secretion IgA, calprotectine, and EXP
- Darkfield live blood analysis
- Lymphotropic and neurotropic viruses
- CRT Thermography
- HRI and Paracelsus 'Heart Music Test' (measuring unconscious nervous system)
- Hormone test including thyroid, pituitary and adrenal hormones
- Fatty acid profile
- Detoxification and anti-oxidative stress gene profile
- Food allergy testing including: IgG4 for 20 main food allergens including dairy, gluten and/or almonds (as they are often found and may be the main factor for decreased immune defenses)

The following pages give an overview on the history of Borreliosis and related orthodox test methods:

The Mystery of Lyme Disease – an overview on the history of Borreliosis

Even though there had been descriptions of similar diseases from several dermatologists in the early 20$^{th}$ century Europe [1909: Erythema migrans from Afzelius (S); 1924: Acrodermatitis chronica atrophicans-ACA from M. Jessner and A. Löwenstamm (D/PL); 1943: Lymphadenosis benigna cutis-Lymphozytom from Bo-Erik Bäfverstädt (S)], from a historical perspective, the myth about Lyme Borreliosis started in 1977. At that time, Allen C. Steere (M.D.) and his colleagues, who were studying rheumatology at Yale University (now professor at Harvard), discovered a "new disease" called Lyme Borreliosis after substantial prospective trials took place in the vicinity of Lyme/CT U.S.A. They asserted that within a few weeks, a migrant erythema may develop at the location of a tick bite and following, these patients often show significant neurologic, cardiac or arthritic symptoms. The same study group announced later on that the disease they discovered can be successfully treated by antibiotics. This circumstance had the implication that Lyme Borreliosis was probably a tick transmitted bacterial infection. From these findings, a perpetual discussion continued so that in 1983, the first international conference on Lyme disease took place at Yale University. The later discussions lead to periodical conferences being held in Europe and USA.

A big controversy started in the mid-1990s and is still ongoing today, where Lyme disease became a "junk-drawer diagnosis" covering medical conditions ranging from chronic fatigue syndrome (CFS), multiple chemical sensitivity (MCS), fibromyalgia to even psycho-somatic reactions. Lyme Borreliosis at present has become over diagnosed and over treated. Many apparently Lyme sick patients with chronic symptoms received long term high dosages of antibiotics without any effect, often having done more harm than good. This finally led to the situation that Steere and his colleagues once claimed:

patients with a positive serology for Borrelia infection and symptoms resembling those of CFS, MCS or fibromyalgia would not necessarily be helped with long courses of antibiotics.

From the biological perspective, the phenomenon of antibiotics 'not helping' is easily explained. On one hand, we have bacteria transmitted by a tick bite; on the other hand, we have a human organism with burdens, malfunctionings and genetic predispositions. All the antigens the body is exposed to due to the salivary transmission through the tick bite are immune system relevant and can possibly create ongoing systemic immune reactions. As we know, the immune system can be compromised by many factors (toxins, waste products, heavy metals, dead teeth, acidic milieu, unbalanced intestinal flora, bowel inflammation, genetic detoxifying deficiencies, malfunctioning interleukins, disabled immunological reactions, etc.). This can lead to a block in therapy and explains why some patients respond to orthodox treatment and others do not. The reason is related to the milieu and a properly working metabolism including proper immunologic function. Therefore, our treatment needs to address the following: remove possible burdens and blocking elements, add additional support to a compromised immune system and sustain the vital parts that are mainly affected (e.g. joint, nerve system, muscles etc.) as basic essentials in the biological treatment protocol of Lyme Borreliosis

Due to Willy Burgdorfer, an American scientist born and educated in Basel, Switzerland, and his scientific work, we now know that Lyme Borreliosis is a tick-borne infection caused by the spirochete *Borrelia burgdorferi*. The reservoir of these bacteria is found in wild animals, especially mice and birds. Carriers for Borrelia are ticks and they depend on blood meals within certain periods of their life cycle

*Borrelia burgdorferi* is transmitted through the bite of an infected tick. The diagram shows the reproduction cycle of a tick; from egg to larva to nymph and finally to the adult tick. For their development, the larva, nymph and adult tick needs blood from animals or humans. During the blood sucking process, the blood-borne pathogen is transmitted. Even though Borrelia spirochetes may be transmitted, pathological symptoms may not occur in all humans or domestic animals, as the symptoms are determined by their 'milieu' condition.

Looking at the pathogenic germ from a microbiological perspective, we see the superficial layers of the germ contain proteins that are responsible for immune reactions. These layers are also responsible for the identification by phagocytes and other non-specific defense systems of the human body. Due to the sequence of their discovery, the proteins are referred to as OspA – OspF.

OspA binds the bacteria to the epithelial cells of a tick's bowel. After a tick's bite and the contact of blood, the OspA is down-regulated and the OspC increases. This way, the Borrelia bacteria can release itself from the tick's intestine and within the hemolymph, reaches the salivary glands through which the bacteria finally enter the host. The key to the difficulties in treating Lyme lays upon these Osp proteins that are very heterogeneous within their expression and behavior and act very dynamically in different and changing environmental influences. This once again emphasizes the biological theory.

Due to this changing capability from OspA–OspF, with many OspC subgroups, Borrelia can persist in cells and especially within bradytrophic or weakly blood supplied tissues like fascias, tendons and ligaments. This way, the bacteria have some protection against mechanism of immune defense and even antibiotics. Long term antibiotics are therefore not necessarily the answer to Lyme infection and should therefore be considered only in exceptional cases.

The methods of laboratory diagnostics of Lyme Borreliosis vary greatly. Literature agrees that the only proofing device for an acute Borreliosis infection is a cultured confirmation. Set up cultures take biopsies from skin, joints and liquor necessary, as well as special nutrient solutions and culture medium. The growing normally takes weeks and is only done by specialized laboratories seldom found across the nation. The methods of direct proof of Borrelia are highly specific but for the daily practice rather difficult to accomplish and in its sensitivity is far too low.

The verification of Borrelia-DNA via PCR (polymerase chain reaction) might not be a 100% proof for vital Borrelia, but still proof enough for an active Borrelia infection. Within certain studies, especially at late manifestations of Lyme, the sensitivity of PCR towards Borrelia detection has been found to be

marginal. This means the PCR might only be able to serve early stage patients. At the same time we find information that a PCR with negative results doesn't exclude Lyme disease at all.

To resume once again, the methods for direct proof are less sensitive but with their specificity, very high; which might be important for medical/legal expert assessments. This needs to be kept in mind.

The indirect verification methods therefore have significant importance. At the Paracelsus Klinik, we first look for the Borrelia specific IgM and IgG antibodies (considering that IgG antibodies are only verifiable within two to six weeks after infection) with an enzyme linked immunoessay (ELISA). For confirmation, we use the Immunoblot (Westernblot) or Lineessays for Borrelia specific antibody detection. Even though it is observed that Immunoblot and Lineessays are more specific and sensitive diagnostics for Borrelia specific antibodies (see table below), we recommend an IgG/IgM test for diagnostics first for economic reasons. Once Lyme is proven, Immunoblot does not give much further information.

If the Immunoblot is performed, the practitioner needs to know what antigen to look for, to be able to interpret the conclusions correctly, and to accurately weigh the test's value. The tested antigen needs to be Borrelia specific, should not cross-react with other bacteria and needs to be adequately immunogenous, so that a high percentage of infected individuals will generate antibodies. Literature shows that this includes: VlsE, p58, p39 (BmpA), p22-25 (OspC) and p21 (DpbA).

| **Proteinantigen** | **Antigen** | **Specificity** | **Comments** |
|---|---|---|---|
| VlsE | Variable major protein (VMP) | High | Sensitivity very high, only expressed in host |
| p58 | | High | Sensitivity very high |
| p39 | Borrelia membrane protein | High | Anti BMPA antibodies occur early |
| p25,24,23,22 | OspC | High | Most important marker for IgM answer |
| p21 | DbpA (Decorin binding protein A) | High | Enables binding to host especially skin |

If the patient tests positive for these antigens, then Lyme is medically proven. An individual treatment protocol can be started after knowing the status of the heavy metal burden and the intestinal flora composition, as both are building blocks for the correct therapy. We also always recommend a Darkfield examination of the vital blood, as it is the milieu that creates the disease, not the infection itself. From a biological perspective it's also worthwhile looking at neurotropic (Varicella zoster, Measles, Rubella, Polio, Herpes simplex, Cytomegalia) and lymphotropic (Chlamydia, Epstein Barr, Toxoplasmosis, FSME, Hepatitis B/C, Lues) "viruses", which can also contribute to a malfunctioning immune system that should normally handle a bacterial attack deriving from *Borrelia burgdorferi* bacteria.

At present, the medical world also recommends to examine the antibody titers (IgG and IgM) of Ehrlichia, Babesia and Bartonella as concomitant bacteria being transmitted with a tick's bite. From our point of view, going through this may not be worth the effort, since the treatment would remain the same, even though test results may be positive.

**Recommendations for daily practice:**

**Situation 1:**

The patient comes to your office with either a tick attached to their body or immediately after removal of a tick. This is what should be addressed with the patient:

- The location of bite needs to be observed for at least 4 weeks (max. 6 weeks). If redness occurs (erythema migrans), the patient needs to return for re-evaluation.

- Suggested therapy: inject the area of the bite with 2 – 3 ml of lidocaine 1% and 1 ampoule of Pleo-Fort 5X.

- The same therapy should occur in case of feverish temperatures without erythema.

- Other symptoms (that are new to the patient) including cephalgia, arthromyalgia, radicular pain syndrome etc., need to be monitored for at least 6 months. In this case, the milieu tests should be performed and treatment should include:
    - Pleo-Fort 5X – 2 – 3 tablets once daily
    - Pleo-Rec 6X – 2 caps per week for 4 – 6 weeks
    - Pleo-Form drops – 20 drops two to three times daily
    - Pleo-Relivora drops – 20 drops three times daily or Echinacea comp. drops (Ceres)

Conducting laboratory tests will only make sense if the tick bite happened during outdoor work or recreation (exclusion of an existing Borrelia infection), or if the patient's history shows Lyme symptoms. In case the tick still exists, there might be a chance to prove the tick had been infected through a Borrelia-PCR test. In general, there is no need for an immediate investigation with lab testing. The only other procedure that may be indicated is the examination of the vital blood under Darkfield to check the milieu.

**Situation 2:**

The patient describes symptoms or shows clinical findings, which could be due to an early manifestation of Borreliosis. Practitioners should always ask if the patient has been bitten by a tick. If so, then when and where on the body? The location is very important because of the proximate surroundings that may also be affected. If the bite is on the head or neck region, early neurologic symptoms may appear. If the bite is close to a joint, arthritis signs or pain may occur at the affected joint. If the history of the patient and clinical findings suggest a Lyme diagnosis, a whole body examination of the skin is necessary. This way, an erythema or lymphozytoma may be discovered (also in children: earlobe, mamillae, genitals).

The following are symptoms and clinical findings of high diagnostic value regarding the early manifestation of Borreliosis, especially in younger patients regarded as pathognomic:

- Erythema migrans and related skin affections
- Migrant arthromyalgia, transient arthritis, myositidae, bursitidae, enthesitidae
- Radicular pain syndrome
- Cephalgia (double sided)
- Peripheral monoparesis (facial, acral)
- Disturbance of sensibility
- Heart rhythm malfunction (tachycardia supraventricular, AV-block picture)

Darkfield, heavy metal provocation test (DMPS), stool analysis, lymphotropic and neurotropic 'viruses', and a Borreliosis lab diagnostic should be conducted.

Treatment principles should include:

1. Detoxification according to the heavy metal burden

2. Balancing the intestinal flora according to the finding of the stool analysis
3. Enhance up-building forces with nutrition and supplements, according to positive food intolerances through IgG4 and lab tested deficiencies in certain vitamins, minerals and trace elements
4. Immunological support with isopathic remedies and nosodes

Heavy metal detox and milieu improvement can be accomplished through:

- Regular detox infusions
- Deacidfication of the milieu (alkaline diet, i.v. drips)
- Vitamin C 1-3 grams/day
- Selenium 150 micrograms/day
- Zinc 30 milligrams/day
- Green-brown algae (e.g. Bio King algae mix)
- Methionine 1 gram/day

In addition, Paracelsus Klinik's regular Lyme treatment 'according to Dr. Rau' should be established using:

- Pleo-Fort – one 5X tablet three times daily or one 4X cap once per day
- Pleo-Rec – one 4X cap once per week (e.g. every Friday)
- Ceres Dipsacus drops – 3 – 4 drops five times per day (the "Swiss magic drops"!)
- Pleo-San Brucel – 8 drops twice per day (salivize)
- Vitamin C – 2 – 3 grams per day
- Pleo-Oku drops – 15 drops three times per day

The burden of the immune system should be addressed using an individual nosode therapy, taking into considering the tested neurotropic and lymphotropic 'viruses'. Use the following composition:

- On Apo-Infect (Pekana); Tox Ex (Pekana), Pleo-Relivora (Sanum) or

Phytocortal (Steierl)

Add:

- Echinacea comp. (Heel)
- Engystol (Heel)
- Pleo-Quent (Pleo-Sanum)
- Pleo-Not X5 or Pleo-Fort X5 (Pleo-Sanum)
- Pleo-Rec X4 (Pleo-Sanum)
- Cerebrum comp. (Heel)

And from each virus which had been tested positive on IgG

- 1 Nosode vial X30

Each virus which had been tested positive on IgM

- 1 Nosode vial X6/X12

As well as:

- Borrelia Nosode X12
- Luesinum X200

The above remedies should be taken according to Sawtooth scheme:

1st day: 1 drop twice a day

2nd day: 2 drops twice a day

3rd day: 3 drops twice a day

10th day: 10 drops twice a day

11th day: 9 drops twice a day etc.

**Situation 3:**

The patient arrives with symptoms that could be caused by a late stage infection of Borrelia. Always take the history of the patient into consideration. Was there a tick bite? What are their risk factors: where does the patient work (woods? outside?), possible hobbies (camping); have they had periods of rashes; and try to distinguish between past and acute symptoms. Never forget the body examination: skin afflictions; bodily changes in the joints, noticeable neurologic problems.

Possible clinical symptoms and findings are:

- Acrodermatitis chronica atrophicns
- Mono- or asymmetric oligoarthritidae of the major joints (DD: reactive arthritis)
- Chronic enthesitidae/ tendonitis
- Peripheral neuropathies, diffuse pain syndromes, severe paralysis
- Focal encephalitis, encephalopathy (brain cramps, eye problems)
- Depression, tiredness, exhaustion, CFS, MCS

Even in later stages of Lyme, the protocol doesn't differ very much since the paradigms remain the same: 1) Detoxification, 2) Intestinal flora balance, 3) Enhancement of up-building forces, 4) Immune system support.

For detoxification and to increase the metabolism, the practitioner may want to add ozone treatments twice per week:

- 100 ml venous blood, oxygenation with 70 microgram/ml Ozone

Add:

- Echinacea comp (Heel) 1 vial
- Ubichinon comp (Heel) 1 vial
- Engystol (Heel) 1 vial
- Pleo-Quent 5X (Pleo-Sanum) 1 vial
- Pleo-Form 5X (Pleo-Sanum) 1 vial

Depending on the patient's general condition, orthomolecular infusions with antioxidant and neural therapies, intended as neuro-vegetative stimulation, may be used. In addition, administration of regular Lipostabil i.v. drips (phospholipids), especially if neurological symptoms are observed.

Very important:  The unsaturated fatty acids NEED to be balanced. Often the patient shows very low Omega 3 and high arachidonic and/or linolic acid, which are very much pro-inflammatory! High amounts (2 – 3 tablespoons daily) of flax seed oil, DHA and EPA are given for several months.

**A dietary change is always helpful** to increase the immune strength:

- Avoid all cow dairy products (60% of all people are allergic to Beta-lacto-globulin from cow's milk!)
- Reduce all grains and flours containing gluten to an minimum
- No white sugar
- Eat a lot of vegetables, if possible a high amount in raw form
- Drink lots. The best would be luke-warm water, NO sweet drinks!!

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