

**Langzeit – Antibiosen , Mono – Therapie, Kombination – Therapie**  
**Long time - antibiotics, mono - therapy, combination - therapy**

Long-term treatments with antibiotics are standard procedures for tuberculosis, leprosy, Whipple's disease, acne vulgaris pustulosa et conglobata, chronic bacterial prostatitis, chronic obstructive pulmonary disease (COPD), malaria and some other chronic infectious diseases.

Langzeit-Behandlungen mit Antibiotika sind Standard - Behandlungen bei Tuberkulose, Lepra, Morbus Whipple, Akne vulgaris pustulosa et conglobata, bei chronischer bakterieller Prostatitis, chronischer obstruktiver Lungen-krankheit (COPD), bei der Malaria und auch bei einigen anderen chronisch verlaufenden Infektionskrankheiten.

Prove that, for a chronic Lyme disease and Co-infections, the pathogen had disappeared within a 2 - or 4-week treatment with antibiotics, were never shown.

Beweise, dass bei einer chronischen Lyme-Borreliose und Ko-Infektionen der Krankheitserreger nach einer 2- oder 4-wöchiger Antibiotika-Behandlung verschwunden sei, wurden nie erbracht.

Evidence about whether chronic Lyme disease and co-infections with long-term antibiotic treatment only the placebo effect is effective or that the remaining symptoms cannot be correlated with the infection were also never produced, partly for ethical reasons.

Beweise dazu, ob bei einer chronischen Lyme-Borreliose und Ko-Infektionen unter Langzeitantibiose nur der Plazebo-Effekt wirksam ist, oder dass bleibende Symptome nicht mit der Infektion korreliert sein können, wurden z.T. aus ethischen Gründen ebenfalls nie erbracht.

**Antibiotics reduce the host-specific pathogen load. Thus, the host's own immune system is assisted in its function. The host's own immune system is not weakened by Antibiotics.**

**Antibiotika vermindern die Erregerlast. Dadurch wird das wirtseigene Immunsystem in seiner Funktion unterstützt. Durch Antibiotika wird das Immunsystem des Wirtes nicht geschwächt.**

But by the use of antibiotics the [bacterial colonization of the intestine](#) can be disturbed, a [mitochondriopathy](#) could be strengthened.

Durch die Anwendung von Antibiotika kann aber die [Bakterienbesiedlung des Darmes](#) gestört und eine [Mitochondriopathie](#) deutlicher werden.

Cortisone in therapeutic doses or heavy metals such as e.g. Gold or specific immune suppressive drugs such as MTX, Azathioprim or other cytostatic drugs or the so called biologicals weaken the host's own immune system, however lasting.

Cortison in therapeutischen Dosen oder Schwermetalle wie z.B. Gold oder spezielle Immun-Suppressiva wie z.B. MTX, Azathioprim, oder andere Zytostatika und sog. Biologicals schwächen das wirtseigene Immunsystem dagegen nachhaltig.

DOUBLE BLIND PLACEBO CONTROLLED STUDIES ON THE TREATMENT OF BORRELIOSIS are **prohibited for ethical reasons**. I remind the disaster with the **Tuskee study**. [http://en.wikipedia.org/wiki/Tuskegee\\_syphilis\\_experiment](http://en.wikipedia.org/wiki/Tuskegee_syphilis_experiment)  
<http://www.cdc.gov/tuskegee/timeline.htm>

Doppelblind, placebo-kontrollierte Studien zur Behandlung einer Borreliose sind **aus ethischen Gründen verboten**. Ich erinnere an die Katastrophe mit der **Tuskee Studie**.  
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## **Antibiose, Antibiosis**

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**«Insurance claims data suggest that the use of extended courses of antibiotics and multiple antibiotics in the treatment of Lyme disease has increased in recent years. «**

[Raymond F, Deraspe M, Boissinot M, Bergeron MG, Corbeil J](http://www.ncbi.nlm.nih.gov/pubmed/27494088#) (2016) **Partial recovery of microbiomes after antibiotic treatment.** [Gut Microbes.](http://www.ncbi.nlm.nih.gov/pubmed/27494088#) 2016 Aug 5:0. [Epub ahead of print]

**„Recovery of gut microbiomes three months after antibiotherapy was characterized by the emergence of new genome sequences not observed prior to antibiotic exposure. Participants with low initial gut microbiome diversity had an increased amount of sequences related to antibiotic resistance. Therefore, we suggest that while the taxonomical composition of microbiomes is partially affected by the antibiotic, the genomic content and population structure of bacterial communities is noticeably impacted.“**

[Berende A, ter Hofstede HJ, Vos FJ, van Middendorp H, Vogelaar ML, Tromp M, van den Hoogen FH, Donders AR, Evers AW, Kullberg BJ](https://doi.org/10.1056/NEJMoa1505425) (2016) **Randomized Trial of Longer-Term Therapy for Symptoms Attributed to Lyme Disease.** [N Engl J Med.](https://doi.org/10.1056/NEJMoa1505425) 374(13), 1209-20. doi: 10.1056/NEJMoa1505425. [https://www.ncbi.nlm.nih.gov/pubmed/27028911#cm27028911\\_26797](https://www.ncbi.nlm.nih.gov/pubmed/27028911#cm27028911_26797)  
**Comment: Raphael Stricker 2016 Sep 04 05:28 a.m.**

**Study Conclusion is Incorrect This study did not have a true control group because all chronic Lyme disease patients received an additional two weeks of intravenous ceftriaxone therapy. The study clearly shows that this additional antibiotic treatment was associated with significant improvement in the SF-36 quality of life scale in all patient groups (see Figure 2). Thus the conclusion that additional antibiotic therapy was ineffective for chronic Lyme disease is incorrect.**

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**“...results of multiple clinical trials that show that patients with well-documented Lyme disease who have residual nonspecific symptoms after treatment do not benefit from additional treatment, even with extended courses of IV antibiotics.”**

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- ➔ **Mitochondrien** <http://www.xerlebnishaft.de/mitochondrien.pdf>
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- ➔ **RNA, DNA** <http://www.xerlebnishaft.de/rna.pdf> [http://www.xerlebnishaft.de/endo\\_reticulum.pdf](http://www.xerlebnishaft.de/endo_reticulum.pdf)
- ➔ **Peptide** <http://www.kabilahsystems.de/biogeneamineundpeptide.pdf>
- ➔ **Fettsäuren** <http://www.kabilahsystems.de/ungesaettfetts.pdf>
- ➔ **Elektrolyte, pH-Wert, Spurenelemente** [http://www.xerlebnishaft.de/elektro\\_spur\\_ph.pdf](http://www.xerlebnishaft.de/elektro_spur_ph.pdf)
- ➔ **Vitamine** <http://www.xerlebnishaft.de/vitamine.pdf>
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## Monotherapie Langzeit – Antibiose, Monotherapy Longterm – Antibiosis

Studie Jahr	Krankheit bis Therapie	Pat. Zahl	Antibiotika	Behandlungsdauer	Behandlungs-Ergebnis und -Aussagen
<a href="#">Wahlberg 1994</a>	-	100	Ceftriaxon Amoxicillin Cefadroxil	14 Tage 100 Tage 100 Tage	“Titres of IgG antibodies to B. burgdorferi flagella declined significantly after 6 and 12 months in the patients who had successful treatments”.
<a href="#">Donta 1997</a>	-	277	Tetrazyklin	2 Monate 3 Monate ~4 Monate	20% geheilt, 70% gebessert, 10% unverändert “These results support the use of longer courses of treatment in the management of patients with chronic Lyme disease”.

<a href="#">Oksi 1998</a>	-	30	Cefixime + + Probenicid Ceftriaxon, Amoxicillin	3 bis 4 Monate	"The general outcomes of infection in patients with disseminated Lyme borreliosis after 3-4 months of therapy indicate that prolonged courses of antibiotics may be beneficial in this setting, since 90% of the patients showed excellent or good treatment responses".
<a href="#">Oksi 1999</a>	-	165	Oral Antib. Ceftriaxon	3 Monate 1 ½ Monate	Rückfälle. Gute Ergebnisse "We conclude that the treatment of Lyme borreliosis with appropriate antibiotics for even more than 3 months may not always eradicate the spirochete".
<a href="#">Fallon 1999</a>	-	18	i.v., i.m. i.v. doxycycline, minocycline, amoxicillin, penicillin, azithromycin, clarithromycin, cefuroxime, cefixime	4 Monate	This uncontrolled study suggests that repeated antibiotic treatment can be beneficial, even among patients who have been previously treated and even among patients who are currently Western blot negative, with the intravenous route of treatment being the most effective. A double-blind placebo-controlled study is needed to confirm these results.
<a href="#">Klempner 2001</a>	~4,7 Jahre	129	Ceftriaxon Doxycyclin	1 Monat 2 Monate	"Antibiotic treatment is highly effective for the acute and late septic manifestations of Lyme disease, which is caused by the tick-borne bacterium <i>Borrelia burgdorferi</i> ". "During the six-month evaluation period, we observed improvement in health status in 36 percent of patients, worsening health status in 39 percent, and no significant change in 25 percent". "There is considerable impairment of health-related quality of life among patients with persistent symptoms despite previous antibiotic treatment for acute Lyme disease. However, in these two trials, treatment with intravenous and oral antibiotics for 90 days did not improve symptoms more than placebo".
<a href="#">Krupp 2003</a>	-	55	Ceftriaxon	1 Monat	64% Besserung der Erschöpfung, keine Besserung des Bewusstseins "Patients assigned to ceftriaxone showed improvement in disabling fatigue compared to the placebo group (rate ratio, 3.5; 95% CI, 1.50 to 8.03; $p = 0.001$ )"
<a href="#">Fallon 2008</a>	~9 Jahre	23	Ceftriaxon	2 bis 6 Monate	Signifikante Besserung "IV ceftriaxone therapy results in short-term cognitive improvement for patients with posttreatment Lyme encephalopathy, but relapse in cognition occurs after the antibiotic is discontinued".
<a href="#">Cameron 2008</a>	~7,1 Mon.	52	Amoxicillin	3 Monate	2/3 der Patienten gebessert
<a href="#">Kleemann 2009</a>	~9 Jahre	105	Ceftriaxon Tetrazykline Makrolide Linkosamide Nitroimidazol Lysosomo- tropika	6 Monate bis 3 Jahre	38,8% beschwerdefrei, symptom-free 56,7% gebessert, improved 5,5% unverändert, unchanged
<a href="#">Stricker 2010</a>	-	200	i.v.	~4 Monate	"Prolonged intravenous antibiotic therapy is associated with low morbidity and no IVD-related mortality in patients referred for treatment of neurologic Lyme disease. With proper IVD care, the risk of extended antibiotic therapy in these patients appears to be low".
<a href="#">Kuhn 2012</a>	-	-	Amoxycillin	6 Monate	"The assessors also reported anecdotal data of improved speech, eye contact, sleep behaviors, and a reduction of repetitive behaviors".
<a href="#">DeLong 2012</a>	-	-	Ceftriaxon	3 bis 6 Monate	"This biostatistical review reveals that retreatment can be beneficial. Primary outcomes originally reported as statistically insignificant were likely underpowered".

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**« Despite promising stage 2 data, stage 3 of this trial of ceftriaxone in amyotrophic lateral sclerosis did not show clinical efficacy. The adaptive design allowed for seamless transition from one phase to another, and central venous catheter use in the home setting was shown to be feasible“**

Berende A, ter Hofstede HJM, Rogier A et al. (2014) **Persistent Lyme Empiric Antibiotic Study Europe (PLEASE) - design of a randomized controlled trial of prolonged antibiotic treatment in patients with persistent symptoms attributed to Lyme borreliosis**. BMC Infectious Diseases, 14, 543 <http://www.biomedcentral.com/1471-2334/14/543> <http://www.ncbi.nlm.nih.gov/pubmed/25318999>

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**« Though prolonged antibiotic therapy is not the answer, we do not know what is truly helpful. ... Future research efforts should continue to explore such different strategies that may lead to proven options for helping our patients. »**

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### Kombinationstherapie Langzeit – Antibiose, Kombination- Longterm – Antibiosis

Studie Jahr	Krankheits-Dauer	Pat. Zahl	Antibiotika	Behand-lungs Dauer	Behandlungs-Ergebnis
<a href="#">Gasser 1990</a> <a href="#">Gasser 1996</a>	-	18	Roxythromycin + Cotrim	-	76% of the patients recovered completely. These results show that oral therapy of cotrimoxazole and roxithromycin in combination provides similar results as i.v. antibiotics in earlier studies.
<a href="#">Gasser 1995</a>	-	-	Penicillin G Cephalosporine + Sulbactam	-	-
<a href="#">Aygen 1996</a>	-	10	Ceftriaxon + Rifampicin + Doxycyclin	2 bis 6 Wochen	-
<a href="#">Donta 2003</a>	-	235	Macrolide + Hydroxychloroquine	2 Monate 3 Monate	->20% gebessert, prolonged therapy ->45% gebessert. "These results support the hypothesis... that the use of a lysosomotropic agent augments the clinical activity of macrolide antibiotics in the treatment of patients with chronic Lyme Disease".
<a href="#">Schardt 2004</a>	-	11	Antibiotika, im Anschluss daran Fluconazol	nach erfolgloser Antibiose 25 Tage lang	At the end of treatment eight patients had no borreliosis symptoms and remained free of relapse in a follow-up examination one year later. In the remaining four patients, symptoms were considerably improved.
<a href="#">Sparing 2004</a>	-	-	Makrolide, Tetracycline, Fluorchinolone	-	-
<a href="#">Hartman 2010</a>	-	5000	Actos+Cholestyramin+Minocyclin+Quensyl, anschließend Metronidazol	Ca 4 Jahre, entspr. der Symptomatik	-

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Waag DM (2012) **Q Fever.** Medical Aspects of Biological Warfare \* Microbiologist, Division of Bacteriology, US Army Medical Research Institute of Infectious Diseases, 1425 Porter Street, Fort Detrick, Maryland 21702 [http://www.bordeninstitute.army.mil/published\\_volumes/biological\\_warfare/BW-ch10.pdf](http://www.bordeninstitute.army.mil/published_volumes/biological_warfare/BW-ch10.pdf)  
“Q fever endocarditis patients generally receive **18 months** of therapy with doxycycline, 100 mg twice daily, and chloroquine, 200 mg three times daily. 107 Quinolones can also be used for those who cannot tolerate chloroquine. For these patients, **3 years** of therapy with doxycycline, 100 mg twice daily, and ofloxacin, 200 mg three times daily, is recommended. **The long duration is recommended because relapses have occurred when the latter regimen was stopped**”.

Hashemi S., Gachkar L., Keramat F. et al. (2012) Comparison of doxycycline–streptomycin, doxycycline–rifampin, and ofloxacin–rifampin in the treatment of **brucellosis**: a randomized clinical trial [☆](#) International Journal of Infectious Diseases Volume 16, Issue 4 , Pages e247-e251 [http://www.ijidonline.com/article/S1201-9712%2812%2900015-X/abstract?elsca1=etoc&elsca2=email&elsca3=1201-9712\\_201204\\_16\\_4&elsca4=infectious\\_diseases#article-footnote-1](http://www.ijidonline.com/article/S1201-9712%2812%2900015-X/abstract?elsca1=etoc&elsca2=email&elsca3=1201-9712_201204_16_4&elsca4=infectious_diseases#article-footnote-1)

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“**Discovery of the spirochetal aggrecanase raises many questions about the pathogenesis of Lyme arthritis and lends support to the concept of persistent B. burgdorferi infection in patients with chronic Lyme disease symptoms**”.

[Barten DG](#), [Delsing CE](#), [Keijmel SP](#) et al. (2013) **Localizing chronic Q fever**: a challenging query. BMC Infect Dis. 13(1), 413. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/24004470>  
“**CONCLUSIONS: If chronic Q fever is diagnosed, 18F-FDG PET/CT is a helpful imaging technique for localization of vascular infections due to chronic Q fever. Patients with proven chronic Q fever were diagnosed significantly more often with mycotic aneurysms than in previous case series. Definite endocarditis due to chronic Q fever was less frequently diagnosed in the current study. Chronic Q fever often occurs in patients without a known episode of acute Q fever, so clinical suspicion should remain high, especially in endemic regions.**”

Hermans T, Jeurissen L, Hackert V, Hoebe C (2014) Land-Applied Goat Manure as a Source of Human Q-Fever in the Netherlands, 2006-2010. PLoS ONE 9(5), e96607. doi:10.1371/journal.pone.0096607 <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0096607>

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[http://www.diplomica-verlag.de/gesundheitswissenschaften\\_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelien-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung\\_159733.htm](http://www.diplomica-verlag.de/gesundheitswissenschaften_94/antibiotika-langzeit-therapie-bei-chronischer-lyme-borreliose-mit-borrelien-dna-nachweis-durch-pcr-intensivbehandlung-kombinationsbehandlung-langzeitbehandlung_159733.htm)

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<http://www.nejm.org/doi/full/10.1056/NEJMoa1505425>

„In patients with persistent symptoms attributed to Lyme disease, longer-term antibiotic treatment did not have additional beneficial effects on health-related quality of life beyond those with shorter-term treatment.“ „12-week oral course of doxycycline, clarithromycin plus hydroxychloroquine, or placebo. All study groups received open-label intravenous ceftriaxone for 2 weeks before initiating the randomized regimen“.

Feng J, Zhang Sh, Shi W, Zhang Y (2017) **Activity of Sulfa Drugs and Their Combinations against Stationary Phase *B. burgdorferi* in vitro.** Running title: Sulfa drugs and their combinations against *B. burgdorferi* persisters. bioRxiv preprint <http://dx.doi.org/10.1101/112607>

doi: bioRxiv preprint first posted online Mar. 3, 2017

„Four drug combinations dapsone+minocycline+cefuroxime+azithromycin and dapsone+minocycline+cefuroxime+rifampin showed best activity against stationary phase *B. burgdorferi* in these sulfa drug combinations. However, these 4-sulfa drug containing combinations still had considerably less activity against *B. burgdorferi* stationary phase cells than the daptomycin+cefuroxime+doxycycline used as a positive control which completely eradicated *B. burgdorferi* stationary phase cells.“

Lacout A, Marcy PY, El Hajjam M, Thariat J, Perronne C (2017) **Dealing with Lyme disease treatment.** *Am J Med*, 2017; doi:10.1016/j.amjmed.2016.12.039

[http://www.amjmed.com/article/S0002-9343\(17\)30103-1/fulltext](http://www.amjmed.com/article/S0002-9343(17)30103-1/fulltext)

„This explain why Lyme disease treatment can be challenging, particularly in the chronic form of the disease. The importance of the bacterial load and the deep bacterial location may require long-term antibiotherapy by combining different therapeutic molecules.“

Kumar M, Sharma A, Grover P (2019) **Triple Tick Attack.** *Cureus.* 1(2), e4064. doi:

10.7759/cureus.4064. <https://www.ncbi.nlm.nih.gov/pubmed/?term=Triple+Tick+Attack>

„The patient was started on azithromycin and atovaquone. Doxycycline was added empirically for Lyme disease, which was later confirmed by serology. In addition, Anaplasma titers were also positive. Further investigation revealed that the parasitic load was 9.04%, and RBC exchange (erythrocytapheresis) was performed for severe babesiosis. Repeat laboratory tests demonstrated an inadequate reduction in parasitic load (6.54%), requiring a second round of RBC exchange. Antimicrobials were changed to clindamycin, quinine, and doxycycline for a total of 14 days ».

➔ **Borrelien Direkt – Nachweis, Direct Detection of Borrelia**

[http://www.erlebnishaft.de/borrelien\\_direktnachweis.pdf](http://www.erlebnishaft.de/borrelien_direktnachweis.pdf)

➔ **Antibiosetherapie** [www.kabilahsystems.de/antibiosetherapieplan.pdf](http://www.kabilahsystems.de/antibiosetherapieplan.pdf)

➔ **Phytotherapie** <http://www.kabilahsystems.de/phytotherapie.pdf>

➔ **Begleit-Therapie allgemein** [www.kabilahsystems.de/kommentmedbegleittherapie.pdf](http://www.kabilahsystems.de/kommentmedbegleittherapie.pdf)

➔ **Salutogenese und Resilienz** [www.xerlebnishaft.de/salutogenese.pdf](http://www.xerlebnishaft.de/salutogenese.pdf)

➔ **Klemann W** <http://www.dr-w-klemann.de/htmldocs/neuigkeiten-erfahrungen-mit-langzeitantibiose-erkenntnisse-ueber-biofilme.php>

- ➔ **Interview with Prof. Ying Zhang at the NorVect Conference 2015**  
<https://www.youtube.com/watch?v=krXSFmkwXxo&feature=youtu.be&app=desktop>
- ➔ **Antibiotika Pulstherapie, pulsed antibiotic therapy**  
[http://www.kabilahsystems.de/antibiotika\\_pulse.pdf](http://www.kabilahsystems.de/antibiotika_pulse.pdf)
- ➔ **Management nach Zeckenkontakt**  
[www.xerlebnishaft.de/management\\_nach\\_zeckenkontakt\\_en.pdf](http://www.xerlebnishaft.de/management_nach_zeckenkontakt_en.pdf)  
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## Therapie – Komplikationen, Therapy complications

1. Gallenblasen – Komplikationen bei Infusionstherapie mit Ceftriaxon
2. Sepsis bei liegendem Katheter (Fremdkörper)
3. Candida – Sepsis
4. Clostridium difficile – Sepsis
5. Allergische und pseudoallergische Reaktionen (Jarisch-Herxheimer – Reaktion)
6. evtl. bakterielle Hypermutation (Anlass zu häufigerem Medikamenten – Wechsel)
7. DRESS = Drug reaction with eosinophilia and systemic syndroms
8. Red man syndrome, Depression, Angstzustände
9. Mentale Probleme während eines veränderten Darm – Mikrobioms

Nadelman RB, Arlin Z, Wormser GP (1991). Life-threatening complications of empiric ceftriaxone therapy for 'seronegative Lyme disease'. South Med J 84, 1263-5. [CrossRefMedlineWeb of Science](#)  
[Search Google Scholar](#)

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Patel R., Grogg KL., Edwards WD., et al. (2000) **Death** from inappropriate therapy for Lyme disease. Clin Infect Dis 31, 1107-1109 <http://cid.oxfordjournals.org/content/31/4/1107.short>  
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## Verlaufs – Muster, course pattern

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„Je nach Region zeigen Seroprävalenzstudien, dass bis zu 20 % der Probanden Antikörper gegen *Borrelia burgdorferi* sensu lato aufweisen. Diese hohe Rate von Seropositiven hat die Annahme begründet, dass der Nachweis von Immunglobulin-G-Antikörpern (IgG-Antikörpern) in vielen Fällen lediglich auf eine früher durchgemachte Infektion zu interpretieren wäre. Diese Ansicht wird noch heute vielfach publiziert. In einer Langzeituntersuchung des genannten Kollektivs konnten wir dann aber zeigen, dass alle seropositiven Probanden irgendwann auch klinisch symptomatisch werden. Die maximale Latenzzeit bis zum Auftreten von Krankheitssymptomen betrug acht Jahre. **Daher kann heute als geklärt gelten, dass die Lyme-Borreliose eine primär chronisch verlaufende Infektionskrankheit ist, bei der es in Analogie zur Syphilis keine Spontanheilung gibt. Die These eines „Durchseuchungstiters“ im Sinne einer durchgemachten, spontan überstandenen Infektion konnte nie belegt werden und sollte heute obsolet sein.“**

**In English now: Therefore, it can be said today that Lyme borreliosis is a primarily chronically infectious disease in which there is no spontaneous healing in analogy to syphilis. The thesis of a "penetration titrix" in the sense of a spontaneously surrendered infection could never be proven and should be obsolete today.**

Lyme disease.org <http://www.lymedisease.org/resources/handouts5.html>

## Relapses and Failure Rates Using Short Term Approaches

<http://www.lymedisease.org/resources/Relapses%20and%20Failure%20Rates.pdf>

**“This listing of peer-reviewed, published articles illustrates the high failure rates, ranging from 26% to 50%, using short term antibiotic approaches.”**

Berghoff W (2014) **LNB Verlaufsbeobachtungen nach antibiotischer Behandlung.**

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Cadavid D, Auwaerter PG, Rumbaugh J, Gelderblom H. (2016) **Antibiotics for the neurological complications of Lyme disease. Cochrane Database of Systematic Reviews** Issue 12. Art. No.: CD006978. DOI: 10.1002/14651858.CD006978.pub2. [View/save citation](#)  
<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD006978.pub2/abstract>

**“None of the trials revealed any between-group differences in symptom resolution in response to active treatment”. “There is mostly low- to very low-quality clinical evidence from a limited number of mostly small, heterogeneous trials with diverse outcome measures, comparing the relative efficacy of central nervous system-penetrant antibiotics for the treatment of LNB. The few existing randomized studies have limited power and lack consistent and well-defined entry criteria and efficacy endpoints. It is not possible to draw firm conclusions on the relative efficacy of accepted antibiotic drug regimens for the treatment of LNB.”**

- ➔ **Borrelien Populationsdynamik** <http://www.erlebnishaft.de/stressvar2.pdf>
- ➔ **Bakterielle L-Formen** <http://www.erlebnishaft.de/stressvar1.pdf>
- ➔ **Biofilme in der Medizin** <http://www.erlebnishaft.de/biofilmmed.pdf>
  
- ➔ **Diagnostik Übersicht** <http://www.erlebnishaft.de/kommentinhalt.pdf>
- ➔ **Diagnostik-Therapie Übersicht** <http://www.xerlebnishaft.de/diagn-therap-multisystkrkh.pdf>
  
- ➔ **Die Koch´schen Postulate** [http://www.xerlebnishaft.de/expand\\_koch\\_post.pdf](http://www.xerlebnishaft.de/expand_koch_post.pdf)
- ➔ **Antibiotika Resistenzen** <http://www.erlebnishaft.de/staphylococcusaureus.pdf>
  
- ➔ **Borrelien Behandlung mit Antibiotika bei Mensch und Tier**  
<http://www.xerlebnishaft.de/trotzantibiosepat.pdf>
- ➔ **Biofilme, Quorum sensing** <http://www.xerlebnishaft.de/quorum.pdf>

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