A Natural Herbal Supplement Protocol developed by NaturalPetRx.

Lyme Disease

NATURAL PROTECTION PROTOCOL,

Geoff D'Arcy, Lic.Ac. DOM

Geoff D'Arcy, Lic. Ac., D.O.M.

Geoff has been a practicing Traditional Chinese Medicine (TCM) Herbalist and Acupuncturist for over 35 years. He started **NaturalPetRx** over twenty years ago at the request of veterinarians looking for herbal pet care options. With his commitment to wellness and natural healing, he has trekked around the world discovering native herbs that have powerful healing properties. With his knowledge he has developed an excellent, well-balanced line of herbal formulas for pets; ranging from common conditions and nutritional support to formulas for serious disease and chronic conditions.

Geoff has authored and co-authored several books on holistic medicine and herbs, including "The Veterinary World Herb Handbook" and "The World Herb Handbook". He has also co-founded two large integrative medical centers in Massachusetts and is now Director of the **D'Arcy Wellness Center** in Natick, Massachusetts. He is president of **D'Arcy Naturals, Inc**., a company that produces all natural herbal formulas for people and pets. www.naturalpetrx.com.

Lyme Disease

NATURAL PROTECTION PROTOCOL

- Lyme disease (LD) is an infection caused by *Borrelia burgdorferi*, a type of bacterium called a spirochete that is carried inside the stomachs of ticks.

- These ticks are in turn, carried by deer, mice and chipmunks.

NATURAL PROTECTION PROTOCOL

Treatment Possibilities

- **Antibiotics**
- **Herbal Protocols**
- **Acupuncture**
- **Diet**
- **Movement**

Work with your Lyme Literate Veterinarian for the best individualized treatment plan.

Natural Lyme Disease Treatment Protocol

- **LD Support**

(1 capsule for 25lbs for 3- 6 months.)

- **Bio Film Breakdown**

(1 capsule for 25lbs for 3- 6 months.)

- **Brocco SGS**

(1 capsule per day)

Natural Lyme Disease Immune Nourishing Protocol

- **Immu Health**

(1 capsule for 50 lbs for 3- 6 months.)

- **Power Shrooms**

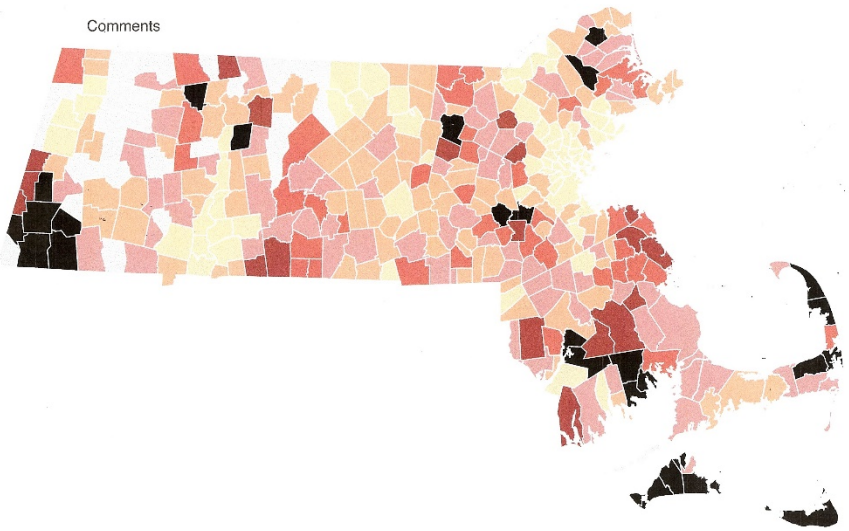
(1 capsule for 50 lbs for 3- 6 months.)

Lyme Rates of Human Infection in Eastern MA

Lyme disease rates in Massachusetts

A town-by-town look at reported confirmed & probable cases per 100,000 residents between 2010 and 2014.

0 OR NOT AVAILABLE | 1-50 | 50-100 | 100-150 | 150-200 | 200-250 | 250+



SOURCE: Massachusetts Department of Public Health

TOWN	per 100,000
Cohasset	228.66
Situate	162.14
Hanover	187.33
Norwell	226.51
Hingham	159.77
Duxbury	185.94
Plymouth	139.19
Marthas Vineyard	400+
Nantucket	500+

THE CDC DEFINITION OF AN "EPIDEMIC" IS ANYTHING OVER 25 CASES / 100,000 POPULATION

Slide courtesy of Bob Giguere, IgeneX Labs

Lyme Disease

- **There will be 40,000 new infections** of Lyme disease this year in Massachusetts. **12,000 of those infected, will go on to Chronic persistent Lyme disease!**

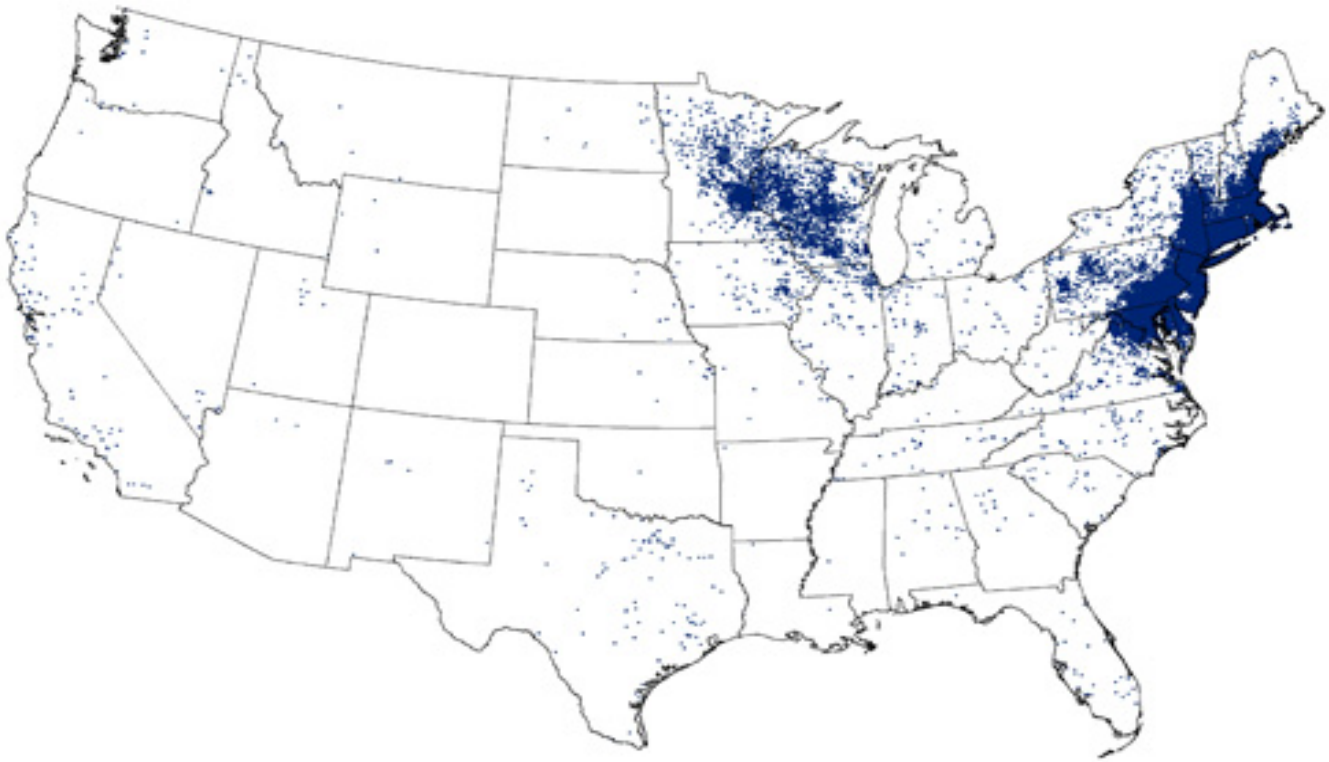
- Lyme disease (LD) is a multisystem infection caused by *Borrelia burgdorferi*, a type of bacterium called a spirochete that is carried inside the stomachs of ticks.

- These ticks are in turn, carried by deer, mice and chipmunks. The reservoir for the bacterium is believed to be white footed mice.

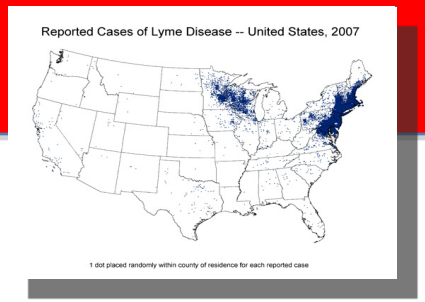
Borrelia burgdorferi

Borrelia burgdorferi,
the bacteria that cause Lyme disease

Lyme Disease in the US



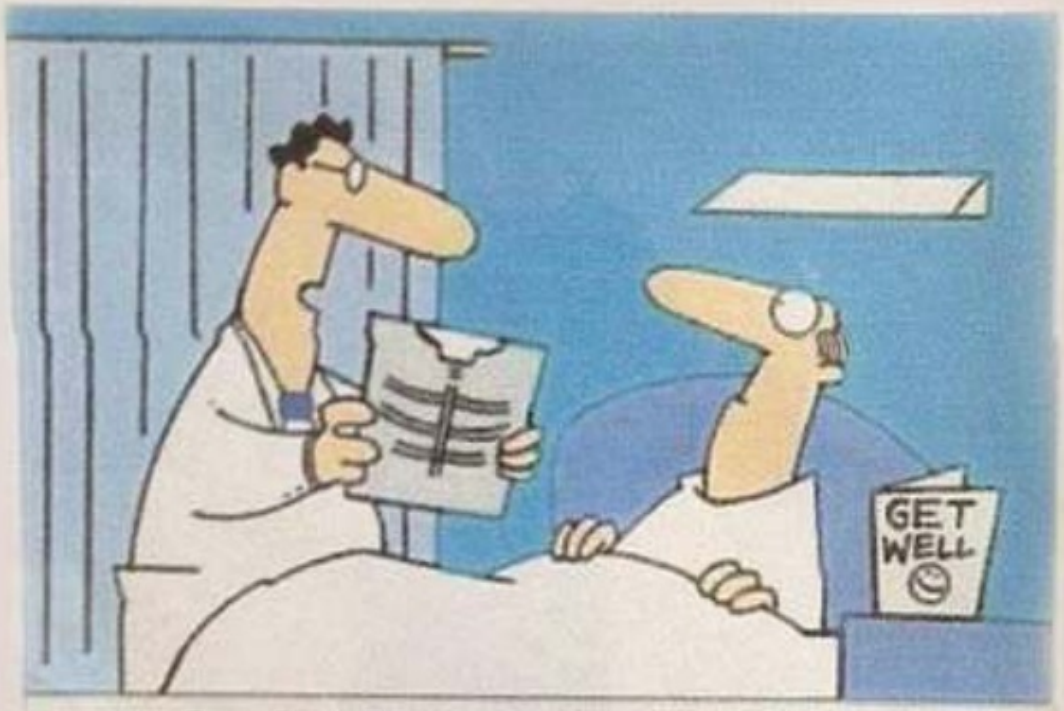
Lyme Disease in the US



- **More than 300,000 cases of Lyme disease are reported to CDC every year**, (the most commonly reported tick-borne illness in the United States), the CDC says. But some reports have suggested it is far more common than that

- **Up to 20 percent of patients have long-term symptoms,** (CDC)

- **At least 40,000 new infections a year in Massachusetts** (Boston Globe)



The bad news is...you have Lyme disease. The good news is, I don't believe in that disease so you're fine!

Antiquity of *Borrelia burgdorferi*

DNA preserved in amber in the Dominican Republic

- **15 Million Years Ago:** 15-million-year-old tick has revealed that the bacteria that causes the disease has been around much, much longer than the human race.
- The discovery was made by George Poinar, Jr. from Oregon State University, and the findings were published in *Historical Biology*.
- .

Antiquity of *Borrelia burgdorferi*

DNA preserved in Iceman in the Austria/Italian Alps

- **5,300 Years ago**
  Austria and Italy about 5,300 years ago. DNA evidence revealed that Ötzi was in poor health prior to his death and was infected with Lyme disease.
- This is the **oldest known evidence of a human to have the disease.**

Antiquity of *Borrelia burgdorferi*

DNA in saved ticks and skin
of mice and foxes

- **1884 Europe:**
  Lancet 1995 Nov 18; 346(8986): 1367. Antiquity of the Lyme-disease spirochaete in Europe [letter]. Matuschka et al.
  In **1884-88** Ixodes ticks attached to a fox are collected and preserved in Austria. Two of them are later found to be infected with B. burgdorferi.

- **1894 USA:**
  J Infect Dis 1994 Oct; 170(4): 1027-32. Detection of Borrelia burgdorferi DNA in museum specimens of Peromyscus leucopus. Marshall et al.

  In **1894** a researcher from a Massachusetts museum collects and preserves white-footed mice. DNA from B. burgdorferi (ospA) was later detected in ear skin samples from 2 mice from Dennis, Massachusetts.

Bernese Mountain Dogs have a breed predisposition to Lyme Disease

•Borrelia burgdorferi **seem to be particularly successful at infecting Bernese Mountain Dogs**, according to recent research. Swiss researchers found that more than half of the dogs they tested were infected with the spiral-shaped bacteria.

• 160 Bernese Mountain Dogs and 62 control dogs, predominantly from other longhaired, large breeds. **The Bernese Mountain Dogs, 58 percent developed antibodies** against B. burgdorferi, compared with only **15 percent of the control dogs**. Factors such as living in a rural area or coat color did not explain the result,

•leading the authors to conclude that the breed **may be predisposed** to B. burgdorferi infection

https://www.sciencedaily.com/releases/2007/07/070712135334.htm
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1959192/

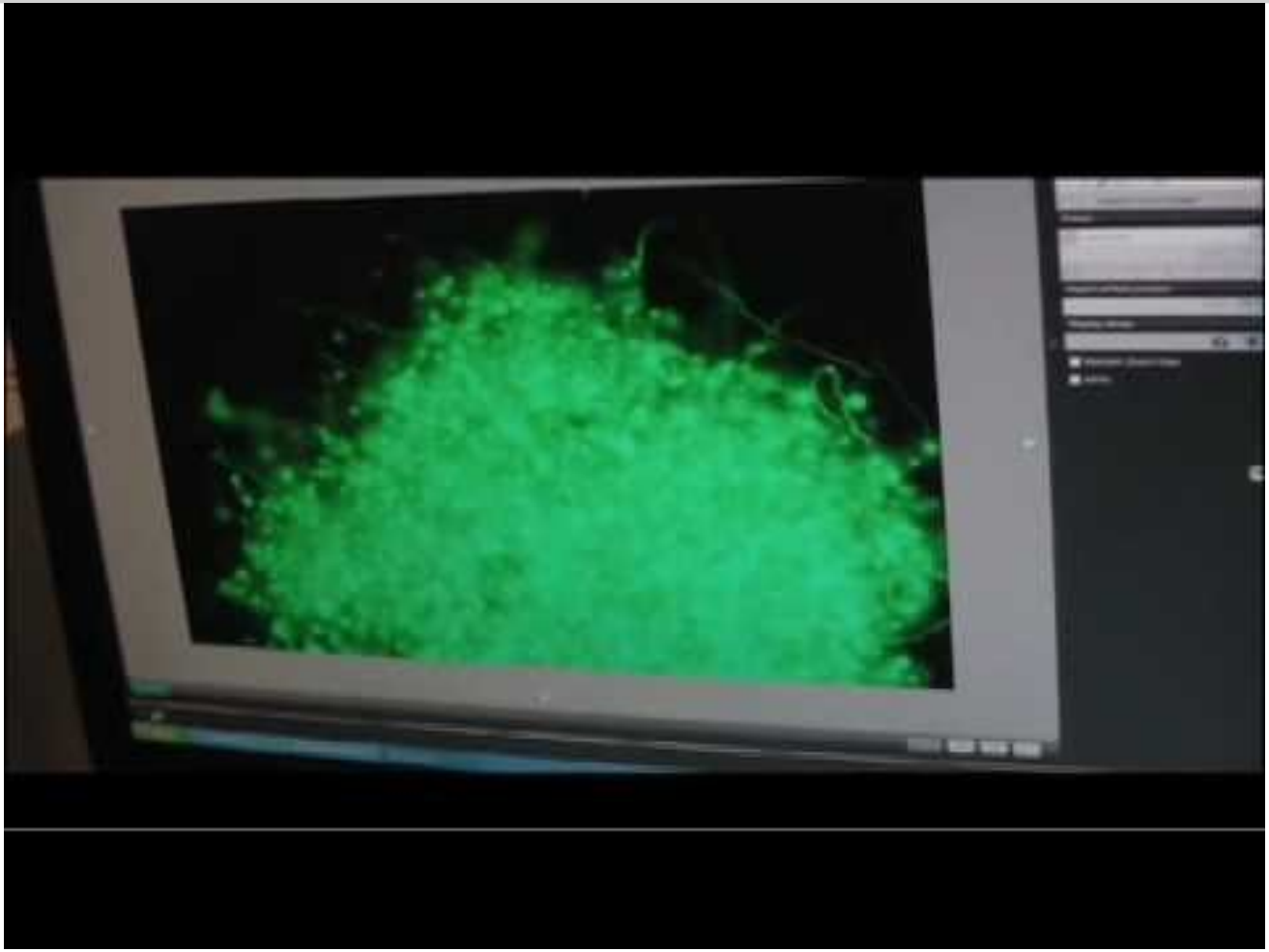
Bernese Mountain Dogs have a breed predisposition to Lyme Disease

- A 2007 study showed that Bernese Mountain Dogs more often had antibodies against *B. burgdorferi* compared to control dogs. The **higher prevalence of antibodies** against *B. burgdorferi* in Bernese Mountain Dogs indicates a breed predisposition.

- Susceptibility in some breeds to a certain infection is known from other diseases. Intense breeding might have led to a decrease in defense against infections. This might also be true for Bernese Mountain Dogs, a breed that is known for intense breeding and that has a **narrow gene pool**. This is supported by the fact that several diseases are prevalent in Bernese Mountain Dogs.

Lyme Disease Spirochete in Biofilm mass… video

- https://www.youtube.com/watch?v=a4uNDWdChM8
- Start at 2:08 minutes
- Lyme bacteria are able to shroud their colonies with protective biofilms and this may explain why these pathogens can be so difficult to eradicate with short courses of antibiotics



Lyme Disease Spirochete in Biofilm mass

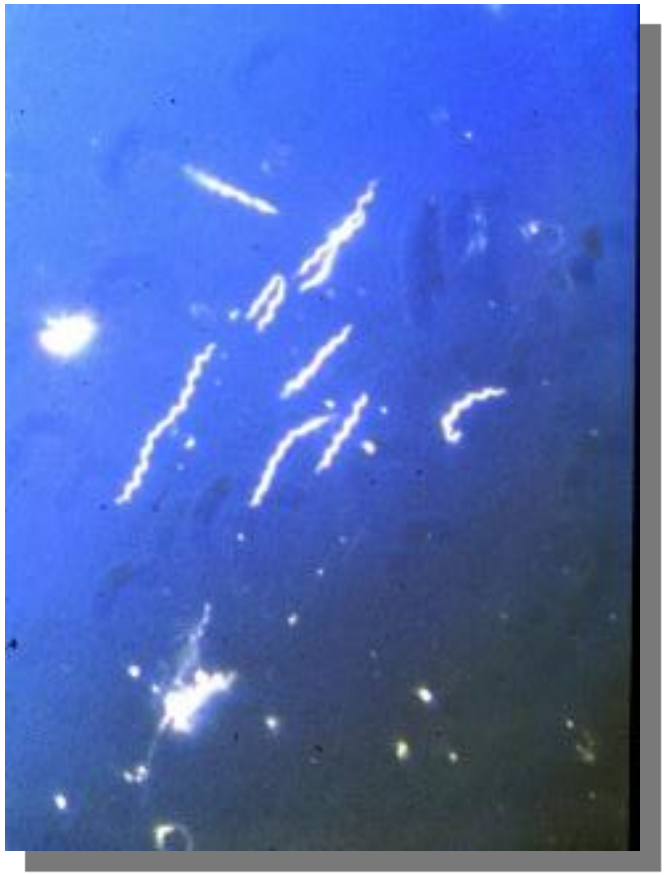
- Biofilms are slimy combinations of various substances which attach to the wall of a cell and **act as a "blanket" for Lyme disease to hide behind.**

  When a biofilm forms to cover Lyme microbes, it may end up shielding those microbes from detection and treatments. This means that when tests are conducted to find Lyme, they could end up showing false negatives. It also makes treatment by antibiotics and herbal protocols much more difficult.

  In order to get rid of Lyme disease that is protecting itself behind biofilms, you need to first get rid of the biofilm

Lyme Disease Symptoms

- Lyme disease is a bacterial infection caused by the spirochete *Borrelia burgdorferi.*
- This organism attacks various organ systems in the body:
  - **Nervous System** *(Bell's palsy, meningitis, jabbing pain, numbess)*
  - **Activity System** *(arthritis, migratory, joint pain, swelling)*
  - **Circulatory System** *(heart block, rhythm abnormalities, pain)*



Human Lyme Disease Symptoms

- Symptoms typically appear 2 – 30 days after the bite of an infected tick.

- Early symptoms:
  - Expanding "bull's-eye" rash
  - Flu-like Symptoms
  - Fever
  - Malaise
  - Fatigue
  - Headache
  - Muscle aches
  - Joint aches

Lyme Disease; Bull's eye rash

"Bull's eye rash," the known indicator that we've had a tick bite. The "bull's-eye" usually appears 3 to 30 days after infection; however this is not fool proof; only 30-50% of those infected have had such a rash.

Lyme Disease Symptoms, Acute and Chronic

- Arthritic-like symptoms
- **Chronic Symptoms** can range from:
- Meningitis
- Bell's palsy
- Heart problems
- Nervous system abnormalities
- Neurological complications
- Headaches
- Depression
- Memory
- Insomnia

Lyme Disease Symptoms

- Gradual onset
- Multi system
- Migratory
- Stiff Joints
- Headaches with stiff, painful, crepitant neck
- Subnormal temperature in AM
- Afternoon Fevers
- 4 week cycles

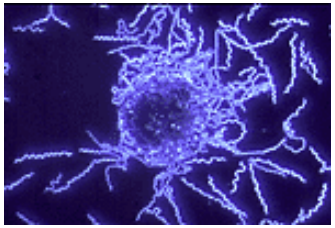
Swollen knee of a youth with Lyme arthritis.

Symptom list courtesy of Bob Giguere of IgeneX

Clinical Features

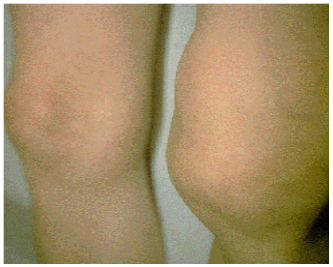
***Ixodes* tick**

***Borrelia burgdorferi* (Bb)**



Erythema migrans

Arthritic knee (Single joint)



Early Lyme Disease

- Erythema migrans (localized and multiple)
- Flu-like illness

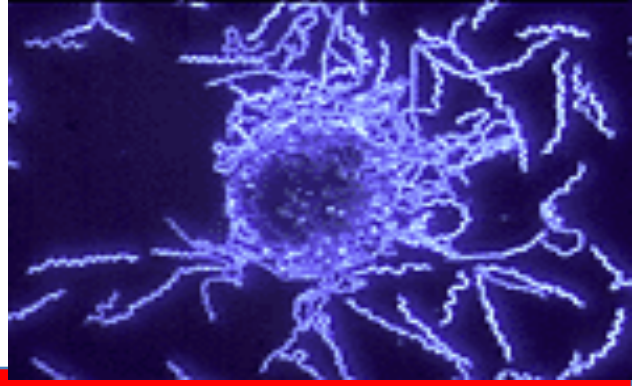
Early Disseminated Lyme Disease

- Neurologic – cranial neuropathy,meningitis, radiculoneuropathy
- Joint – Acute, inflammatory large joint arthritis
- Carditis

Late Lyme Disease

- Neurologic – peripheral neuropathy, encephalopathy
- **Chronic arthritis**

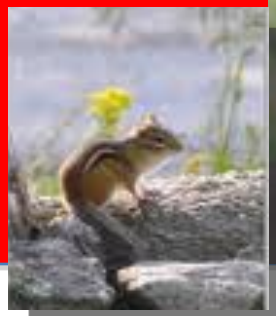


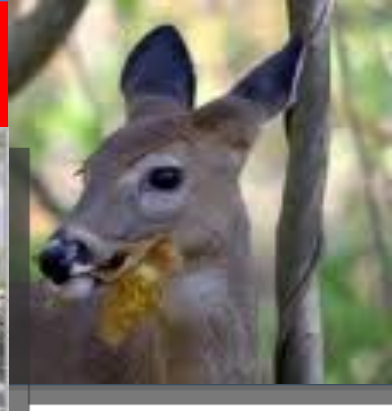


LD is called the *"New Great Imitator"*

Like syphilis, it attacks multiple organ systems and mimics many diseases. (Both diseases are caused by a spirochete.) If ignored, the early symptoms may disappear but more serious problems can develop months, even years later. LD has been linked to over 300 diseases including Parkinson's, MS, ALS, Chronic Fatigue Syndrome and Fibromyalgia.

Prevention





- **Companion Animals** should **Not** be allowed in bedrooms or on furniture.
- **Landscaping**, remove leaves and clear brush and tall grass.
- **Reduce and manage deer** populations.
- **Avoid tick-infested areas**, especially in May, June, and July.
- **Wear light-colored clothing**, **use insect repellent**. (Rose Geranium oil is an option.)
- **After being outdoors, remove clothing and wash down.**

Borrelia burgdorferi

- Lyme bacteria normally lives in mice, squirrels and other small rodents.
- Transmission to pets and people is by the deer tick (Ixodid).
- Deer transport the tick but apparently do not get the infection.
- Increased deer populations in small areas in heavily populated states.

Tick Removal

- Do not burn or use any substance on tick
- Do not grasp, squeeze, or twist body of tick
- Grasp tick close to the skin with tweezers
- Pull tick straight out and put in jar of alcohol to kill it.
- Use antiseptic on skin
- Disinfect tweezers and wash hands thoroughly
- Call M.D. if any flu like symptoms or rash occur.

Don't squeeze the stomach contents (possibly containing Lyme Spirochetes) into the blood stream

Black-Legged Ticks

Adult Female:
Reddish body size comparable to a sesame seed

Adult Male:
Slightly smaller than female completely dark brown

Nymphs:
Size comparable to that of a poppy seed

Larva:
Size smaller than that of a pin head

<u>Larva cannot transmit Lyme Disease!</u>

From left to right: Adult female, adult male, nymph, larva

American Dog Tick

- Reddish-brown coloring
- Silver-grey marking on its back
- Moves around vigorously
- May cause Rocky Mountain Spotted Fever, but does not carry the Lyme Disease bacteria

Lone Star Tick

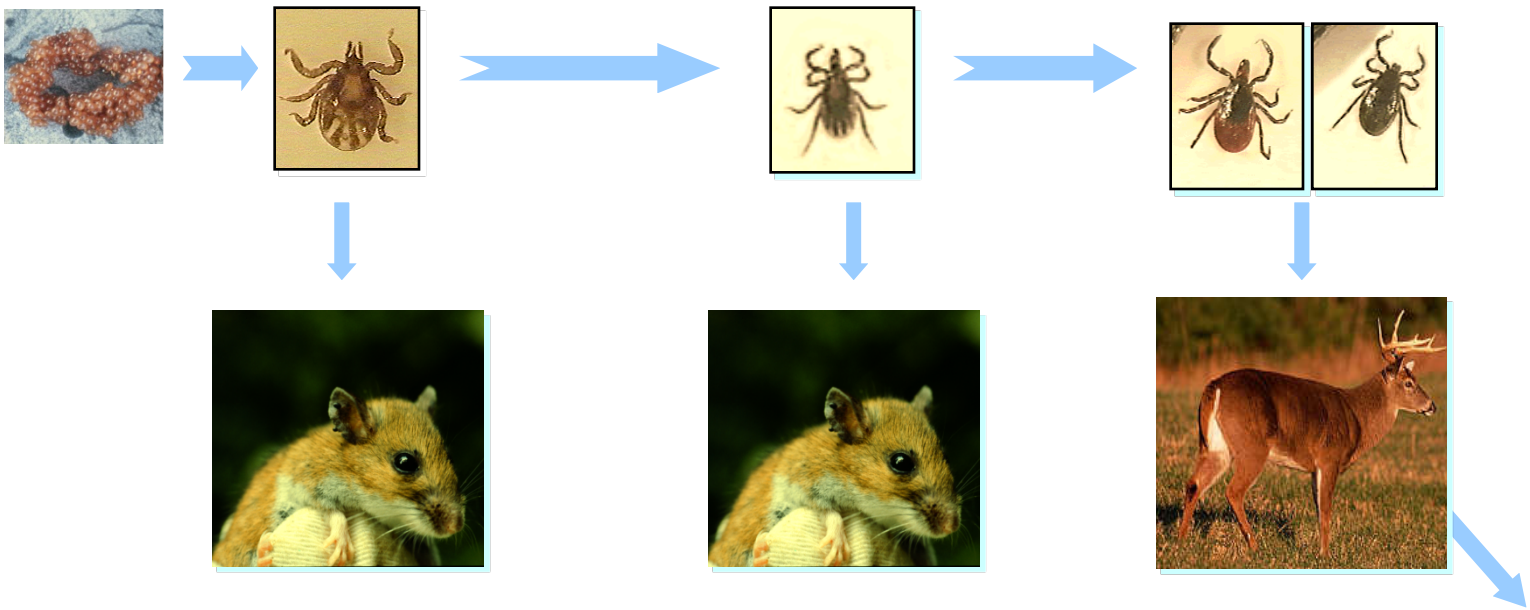
- Conspicuous white marking
- Reddish-brown color
- More circular in shape
- Elongated mouthparts
- May transmit Ehrlichiosis or STARI

The Tick Life Cycle

Year One **Year Two**

Spring Summer Autumn Winter Spring Summer Autumn Winter

eggs larvae nymphs adults



Adults mate, produce eggs & die

Source: Center for Vector-Borne Disease, University of Rhode Island

Borrelia burgdorferi

Canine Lyme Disease

Symptoms in Dogs

- Fever
- Inappetite
- Lymphadenopathy
- Lameness related to polyarthritis
- First described in 1984
- **Studies have shown 50-90% asymptomatic healthy dogs can test positive in endemic states**
- Renal disease

Symptoms in Canines Continued

- Severe renal disease has been associated with Lyme Disease in Canines
- Incidence of the Disease is unknown

Indications of Cats & Dogs

Cats

Cats may show lameness, fever, loss of appetite, fatigue, eye damage, unusual breathing, or heart involvement. Many cats do not show noticeable symptoms, despite being infected.

Dogs

Infected dogs may be lethargic, have a poor/loss of appetite, or a fever (103˚ - 105 ˚ F). Dogs may also experience lameness shifting from one joint to another, fatigue, kidney damage or failure, heart disorders, or neurologic involvemen (e.g. aggression, confusion, overeating, seizures). Dogs can be infected with the Lyme bacterium but not exhibit any noticeable symptoms. Dogs appear to have the same expression of disease as humans, therefore, humans have been considered an animal model for dogs. Transplacental transmission has occurred in dogs.

Canine Tick-Borne Disease

- *Ehrlichia spp., Anaplasma spp.*
- *Rickettsia rickettsii* (RMSF)
- *Borrelia burgdorferi* (Lyme)
- *Bartonella vinsonii*
- *Babesia canis, B.gibsoni*
- *Hepatozoon americanum*

Presence of Co-Infections that go along on LD's ride

- Other tick-borne infections can further complicate an already complex picture.
- Bb may be co-transmitted with *Babesiosis, Ehrlichiosis*, and *Bartonella* co-infections.
- **One study found, that 1-in-5** were seropositive for Bb also *Ehrlichiosis* (DeMartino, Carlyon et al. 2001). 10%-to-60% for *Babesiosis* (Rubel, 2003c; Kraus, McKay et al, 2002).

Canine Ehrlichiosis

- *E. canis*
- *Anaplasma phagocytophilum (E.equi, HE, E. phagocytophilia)*
- *E. ewingii*
- *Anaplasma platys (E.platys)*
- *Neorickettsia risticii*
- Human species: *E.chaffeensis, E.sennetsu, A.phagocytophilum*

Canine Tick-Borne Disease

- *Ehrlichia spp., Anaplasma spp.*
- *Rickettsia rickettsii* (RMSF)
- *Borrelia burgdorferi* (Lyme)
- *Bartonella vinsonii*
- *Babesia canis, B.gibsoni*
- *Hepatozoon americanum*

Diagnosis in Dogs

- Fever
- Sore Swollen Joints
- Positive ELISA test
  - Idexx Laboratories

D'Arcy Lyme Disease Protocl

"Stagnation is the Enemy"

Diet, Exercise, Herbs Acupuncture

"Every organism tries to create the optimum environment within which it will thrive"

Lyme loves…

- stagnation
- inactivity
- lack of circulation of blood(& Qi)
- hypo-thyroidism
- slow metabolisms

D'Arcy Lyme Disease Protocol
"Stagnation is the Enemy"

"Deny the Lyme spirochete, the environment that supports it."

Integrative Lyme Disease Treatment Protocol

Antibiotics, 1 month

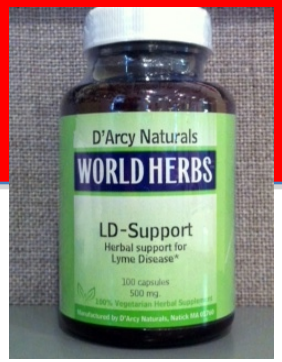
Lyme Support Herbs
(2 to 4 capsules, 3 times daily) 3- 6 months

LD Co-infection Support Herbs
(2 capsules, three times daily) 6 months

Multi-Probiotics, (one capsule, three times daily)
1 month

Broccoli Sprouts Powder. (Herxheimer)
1-5 x day

D'Arcy Lyme Disease Protocol
Herbs – Work Against Lyme



#4. Herbs Against Lyme

Herbal Support Possibilities **Against Lyme**

- **LD-Support** Formula
- LD-CO Formula
- **Biofilm Breakdown** Formula
- **Brocco-SGS**, support agains "Herx" reactions
- Minor Bupleurum
- Teasel
- Tienchi Notoginseng

D'Arcy Lyme Disease Protocol
Herbs Against Lyme

Herbal Support Possibilities: **Immune System**

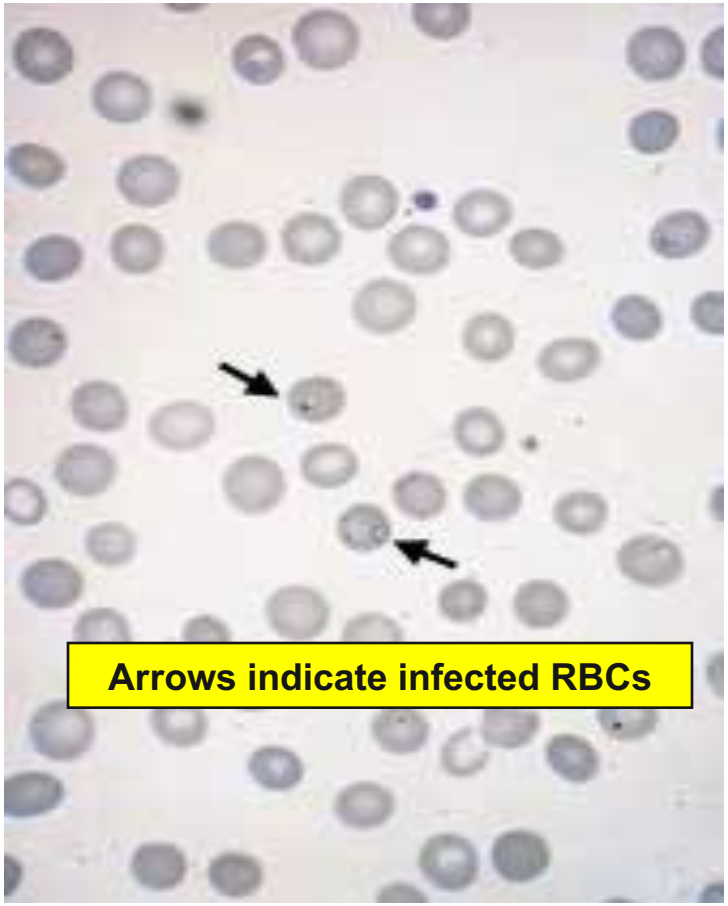
- **Immu-Health** Formula (based on Astragalus Ligustrum formula)
- **Power Mushrooms** Formula
- Tienchi Notoginseng
- American Ginseng

Babesiosis

A malaria-like illness caused by parasite of the genus Babesia, which attacks red blood cells

Bab Formula

(Artemisinin, won Nble prize for treatment of Malaria))



http://www.aafp.org

D'Arcy Lyme Disease Protocol
#5. Acupuncture – Works Against Lyme

Acupuncture is great to treat all of the various symptom pictures of the various stages of Lyme.

Moving stuck 'Qi' (energy), gets stuck that forms areas where Lyme infections can escape the immune system.
Moving "stuck blood" - taking away symptoms of pain and stagnation.

Babesiosis Symptoms

Early symptoms:

- Tiredness
- Loss of appetite
- General ill feeling

Late symptoms:

- Spiking fever
- Drenching Sweats
- Muscle Aches
- Headache

*Symptoms may take 1-6 weeks to appear after a tick bite (Babesiosis is less common than Lyme disease)

Ehrlichiosis

A disease caused by several bacterial species of the genus Ehrlichia, which attack specific white blood cells in the body.

Note the clumps of Ehrlichia in a white blood cell

LD herbal Support Andrographis, *Andrographis Paniculata.*

Studies have demonstrated its use as a remarkable anti-bacterial, anti-spirochetal and anti-viral herb. These studies have proven its use as an anti-parasite herb with a wide range of use against infection in the body, particularly against the following at the following sites:

- **Leptospira spirochetes**, (*infects a wide range of tissues*) causing leptospirosis. leptospira spirochetes have surprising similarities to LD, and recently found by practitioners to be effective against LD., Andrographis was found to be 80% effective against leptospirosis spirochetes.
- **Malaria,** (*blood*), great for co-infection of *Babesia,* similar to malaria parasite.
- **Leishmaniasis**, (*skin and internal organs*) such as human roundworm.
- **Dipetlonema** (*connective tissue*) as in canine parasitic worm.

LD herbal Support Andrographis, *Andrographis Paniculata.*

1. It is anti-spirochetal;
2. It is protective and healing for neurological aspects of LD
3. Anti-inflammatory: *Andrographolide*, the major active component from Andrographis, has shown to possess major anti-inflammatory activity.
4. It is used for the central nervous system, reduces swelling and fights Bb in the collagen at joints (another favorite of Bb);
5. Counteracts periodic/intermittent parasitic diseases (Bb and babesia);

LD herbal Support Andrographis, *Andrographis Paniculata.*

6. Immune enhancement: increases white cell
7. Cardio-protective: it protects heart muscles, dissolves clots, and decreases heart muscle damage after heart attacks, normalized EEG readings; (Bb like heart tissue)
8. Supports liver and detoxification of Bb's neuro-toxins
9. Has a broad protective activity throughout the body protecting and killing Bb spirochetes where they may lodge. Studies show extracts have the ability to enhance DNA repair;
10. Due to its ability to treat rashes and other skin disorders, by aiding in the reduction of heat and elimination of toxins from the body,

LD herbal Support Cats Claw, *Uncaria tomentosa*..

Helps the larger white blood cells (more specifically the CD-57 subset) that destroy the Lyme spirochetes. The problem is finding them, because the spirochetes don't like hanging out in the blood (too dangerous for them) and prefer to hide out and find their way to certain nerve & tissue cells.

Cats Claw helps boost our specific immune response, to-get-out-there and fight the stealth bacterium Bb. A study showing Cat Claw, *Uncaria tomentosa,* to be remarkably effective in treating chronic LD (Cowen et al.) found 100% of patients experienced marked clinical improvement; and 85% were sero-negative for LD at the end of study. Unfortunately, this study is not definitive and has some flaws (Buhner). Several other studies show Cats Claw's immune stimulating qualities and major anti-inflammatory abilities; (22 of 100 studies and papers on Pub Med database).

LD herbal Support Japanese Knotweed, *Polygonum cuspidatum*

Japanese Knotweed's relevance to LD (Buhner):

1. Stimulates microcirculation, esp. to the eyes, knees, heart and skin which helps deliver active constituents to these locations;
2. Reduces inflammation;
3. Protects and correcting the heart function;
4. Provides wide-spectrum antibiotic/antiviral action;
5. Reduces auto-immune responses to LD;
6. Immune enhancement;
7. Protects endothelial integrity form LD's spirochetes and co-infections;
8. Reduces reactive oxygen species production in the CNS and brain.

Herxheimer Healing Reaction

The die-off of toxin-producing micro- organisms releases toxins into the body and as one takes treatment to get better, they feel temporarily worse.

During Herxheimer reactions, support Liver to help Detoxification, use detoxification supportive supplements such as broccoli sprouts.

Broccoli Sprouts Powder Stimulates Detoxification, Supports Herzheimer

- Broccoli Sprouts grown with up to 5,500 parts per million, of sulforaphane ground into sprout powder.

- "Three-day-old broccoli sprouts consistently contain 20 to 50 times the amount of sulforaphane (SGS) support better detoxification by stimulating phase II Liver enzymes

Broccoli sprouts, SGS, Stimulate phase 2 Liver enzymes

- Here are a few of the papers and publications
- Powerful and prolonged protection of human retinal pigment epithelial cells, keratinocytes, and mouse leukemia cells against oxidative damage: the indirect antioxidant effects of sulforaphane. http://www.pnas.org/cgi/doi/10.1073/pnas.261572998 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 26, pp. 15221-15226, December 18, 2001 Xiangqun Gao, Albena T. Dinkova-Kostova, and Paul Talalay
- The impaired glutathione system and its up-regulation by sulforaphane in vascular smooth muscle cells from spontaneously hypertensive rats. http://www.jhypertension.com/article.asp?ISSN=0263-6352&VOL=19&ISS=10&PAGE=1819 Hypertension, Vol. 19, pp. 1819-1825, 2001. Lingyun Wu; Bernhard H. J. Juurlink
- Potent induction of Phase 2 enzymes in human prostate cells by sulforaphane. http://cebp.aacrjournals.org/cgi/content/abstract/10/9/949 Cancer Epidemiology, Biomarkers & Prevention, Vol. 10, pp. 949-954. Sept. 2001. James D. Brooks, Vincent G. Paton and Genevieve Vidanes
- Sensitivity to carcinogenesis is increased and chemoprotective efficacy of enzyme inducers is lost in nrf2 transcription factor-deficient mice http://www.pnas.org/cgi/content/short/98/6/3410 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 6, 3410-3415, March 13, 2001 Minerva Ramos-Gomez, Mi-Kyoung Kwak, Patrick M. Dolan, Ken Itoh, Masayuki Yamamoto, Paul Talalay, and Thomas W. Kensler JHMI Press release: Studies Show Powerful Natural Anti-Cancer System Exists: Goal Now: Fine Tune It
- Potency of Michael reaction acceptors as inducers of enzymes that protect against carcinogenesis depends on their reactivity with sulfhydryl groups http://www.pnas.org/cgi/content/short/98/6/3404 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 6, 3404-3409, March 13, 2001 Albena T. Dinkova-Kostova, Michael A. Massiah, Richard E. Bozak, Ronald J. Hicks, and Paul Talalay. The chemical diversity and distribution of glucosinolates and isothiocyanates among plants Phytochemistry 2001, 56:5-51. Fahey, Jed W., Zalcmann, Amy T, Talalay, Paul.
- Inhibition of benzo[a]pyrene- and 1,6-dinitropyrene-DNA adduct formation in human mammary epithelial cells by dibenzoylmethane and sulforaphane. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10814878&dopt=Abstract Cancer Letters 2000 July 3; 155(1):47-54. Singletary K, MacDonald C.
- Sulforaphane, A Naturally Occurring Isothiocyanate, Induces Cell Cycle Arrest and Apoptosis in HT29 Human Colon Cancer Cells http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10728709&dopt=Abstract Cancer Research 2000 March 1; 60(5):1426-1433. Gamet-Payrastre L, Li P, Lumeau S, Cassar G, Dupont MA, Chevolleau S, Gase N, Tulliez J, Terçé F.
- Chemoprevention of colonic aberrant crypt foci in Fischer rats by major isothiocyanates in watercress and broccoli. Proceedings of the American Association for Cancer Research, March 2000; 41:660. Chung F-L, Conaway CC, Rao CV, Reddy BS.
- Antioxidant functions of sulforaphane: a potent inducer of Phase II detoxication enzymes. http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?uid=10541453&form=6&db=m&Dopt=b Food Chem Toxicol 1999 Sep-Oct;37(9-10):973-9 Jed W. Fahey, Paul Talalay
- The War Against Cancer: New Hope, Proceedings of the American Philosophical Society, March 1999, Vol. 143(1), pp. 52-72., Talalay, Paul.
- Broccoli sprouts: An exceptionally rich source of inducers of enzymes that protect against chemical carcinogens http://www.pnas.org/cgi/content/abstract/94/19/10367 Proc. Natl. Acad. Sci. USA, Vol. 94, pp. 10367-10372, September 16, 1997. Jed W. Fahey, Yuesheng Zhang, and Paul Talalay

Artemisia. Artemisia annua *Supports* against Babesia

- This LD co-infecting agent is a protozoa and a distant cousin of malaria.
- *Artemisia* is one of the most effective herbal agents for treating malaria; Malaria is a parasitic disease (though a very different pathogen) introduced directly into the blood stream by an insect (usually mosquito).
- Artemisinin, one of the active compounds of *Artemisia*, has a 100% clearance rate for Malaria (Zhang).
- Artemisinin has become the treatment of choice for malaria worldwide due to its effectiveness against drug-resistant strains.

Boneset, *Eupatorium perfoliatum* supports against Bartonella and Babesia

- Bartonella recognized as early as 1899 (Cat-Scratch disease,) its symptoms include low grade fever, fatigue, enlarged spleen, anorexia, headache pharyngitis. Bartonella is evolving and morphing recently on Martha's Vineyard as an unusual variant was found in a tick.

- Boneset is exceptionally useful against Bartonella and Babesia. (Buhner) It stimulates the immune system, normalizes CD4/CD8 ratio, actively protects bone marrow macrophages, and stimulates their production. It reduces severity of the periodic fevers and pains

Astragalus supports against Canine/Feline Anaplasmosis (Ehrlichia)

- This herb has been used in TCM for around four thousand years; described in the Shen Nong Cao Jing text two thousand years ago as being one of the superior tonic herbs of TCM. Today, especially with all of the studies documenting its superior status (799 citations on Medline, 2 patents), modern TCM certainly still agrees with this status, two millennia later.
- Astragalus is not about getting rid of the infection, but rather about boosting or modulating the host‘s own immune function to better fight Bb.
- The TCM principle of treating infectious disease applied for centuries says: —fu zheng qu xie support the righteous and dispel the evilll meaning to —boost the immune system, expel the pathogen.
- Ehrlichia are small, gram-negative bacteria that invade leukocytes, white blood cells, producing human granulocystic ehrlichiosis (HGE) and human monocytic ehrlichiosis (HME). Symptoms can include fever, headache, myalgia, malaise, thrombocytopenia leucopenia, etc.