

WHAT TO DO IF YOU GET BIT

Myriah Hinchey, ND, FMAPS



Summary: What to do if You Get Bit

FIRST... 1, 2, 3

1. Prompt and proper removal and identification of tick
2. Apply first aid care
3. Test the tick

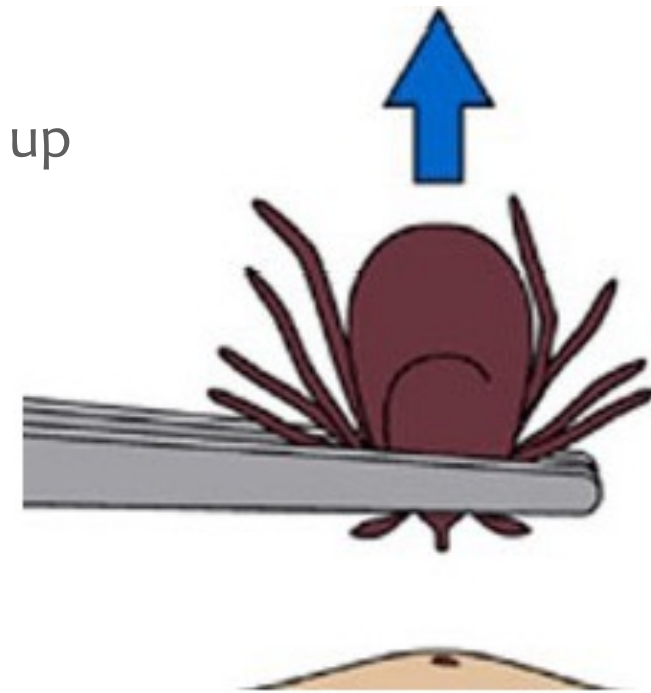
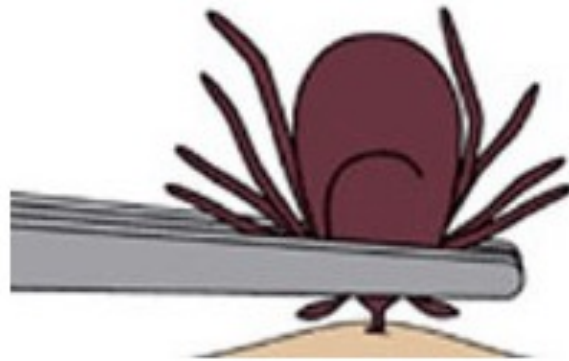
THEN... 4, 5, 6, 7

4. Begin herbal treatment protocol to stop spread of infection
5. Watch for symptoms
6. Get tested (maybe)
7. Use an integrative approach

1

Prompt & Proper Tick Removal

- ▶ Use flat tipped tweezers to remove - firmly grasp the tick at base of its head as close to skin as possible.
- ▶ Gently pull with steady force straight up until it releases itself.



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Improper Tick Removal: What NOT to do

- ▶ Do not irritate, suffocate, or do anything cause the tick to pull its head out – it will regurgitate, releasing spirochetes and other microbes into the body.
- ▶ Do not grab the belly, twist, squeeze, or yank on it fast - this will also cause it to regurgitate contaminants into your blood.
- ▶ Do not apply anything to the tick: alcohol, fingernail polish, Vaseline, etc..

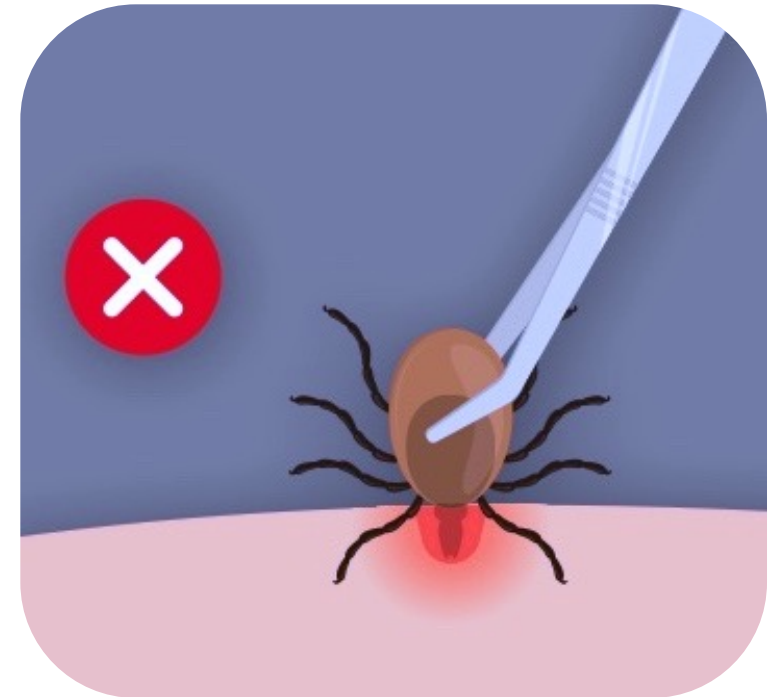


Improper Tick Removal: Dangers

Improper tick removal techniques can lead to:

- Irritation and regurgitation: Ticks may regurgitate harmful microbes when irritated or removed incorrectly.
- Contaminants in blood: Twisting or squeezing ticks can introduce contaminants into the host's bloodstream.
- Higher likelihood of transmission.

Incorrect removal methods can be harmful and increase the risk of tick-borne diseases.



2

Once the Tick is Removed: Apply First Aid

► Clean the bite area and your hands:

- use rubbing alcohol, soap and water

► Apply Topicals:

- Hydrogen peroxide
- Bentonite clay mixed with Andrographis
- Andrographis-soaked cotton with Band-Aid
- Can use homeopathic remedies for insect bites:
 - Apis Mellifica
 - Ledum



3

Test the Tick: Tickreport.com



1. Prepare to Send the Tick for Testing After Proper Removal

- Place the tick into a zip lock bag.

2. Place Your Order

- Register tick and order basic or expanded panel.
- Standard identification and testing for pathogens common to your species of tick, including pathogens that cause Lyme disease (\$50 per tick).
- *Recommended to do the full tick pathogen panel (\$200 per tick).

3. Mail Your Tick

- Place registration number on bag and envelope. Place your tick in a plastic bag and mail it to the lab.
- *Recommend to FedEx overnight for fastest service so you have your results within the 4-day abx treatment window.

4. Wait for Your Results - 72 hours

- Your results are securely delivered via email within 3 business days after your tick arrives to the lab.

Pathogen	Date/Time	Result	Included
<i>Borrelia general species</i> (Lyme or relapsing fever - generic)	05/11/2018 @ 1:32 PM EDT	POSITIVE	included
<i>Borrelia burgdorferi sensu lato</i> (Lyme borreliosis-specific)	05/11/2018 @ 1:32 PM EDT	POSITIVE	included
<i>Borrelia miyamotoi</i> (Hard tick relapsing fever)	05/11/2018 @ 1:32 PM EDT	NEGATIVE	included
<i>Borrelia mayonii</i> (Lyme borreliosis)	05/11/2018 @ 1:32 PM EDT	NEGATIVE	included
<i>Babesia microti</i> (Babesiosis often found in humans)	05/11/2018 @ 1:32 PM EDT	POSITIVE	included
<i>Ehrlichia muris-Like Agent</i> (Ehrlichiosis)	05/11/2018 @ 1:32 PM EDT	NEGATIVE	included
<i>Anaplasma phagocytophilum</i> (Human Granulocytic Anaplasmosis; HGA)	05/11/2018 @ 1:32 PM EDT	NEGATIVE	included

TickReport Fee: \$200.00

Begin Herbal Treatment Protocols

- **Inhibit the Transmission Process**
- **Stop the Spread of Infection**
- **Do While Supporting the Immune System**
- **Herbal remedies have shown efficacy against tick-borne pathogens**
 - can complement other preventive measures (Feng et al., 2020).
- **Regardless of testing results, herbs should be used.**
- **Goal is to understand the infection process and mechanisms that help the infections to spread**
 - BLOCK them while supporting the immune system.
- **After proper removal and tick testing, take herbs proven to do the following:**
 - Inhibit the breakdown and spread of the extracellular matrix.
 - Inhibit cytokine cascade.
 - Balance the immune system.
 - Act as powerful anti-microbials.

Recommended Herbal Blend Formulas to Use as Soon as You Get Bit

Herbal formula that intervenes at every step of the infection process (transmission, acute, chronic phases):

► Tincture w/equal parts:

Echinacea angustifolia (Echinacea)
Withania somnifera (Ashwagandha)
Polygonum cuspidatum root (JKW)
Scutellaria baicalensis (Skullcap)
Cordyceps militaris/sinensis (Cordyceps)
Pueraria lobata (Kudzu)
Salvia miltiorrhiza (Red Sage)
Uncaria rhynchophylla (Chinese Cat's Claw)

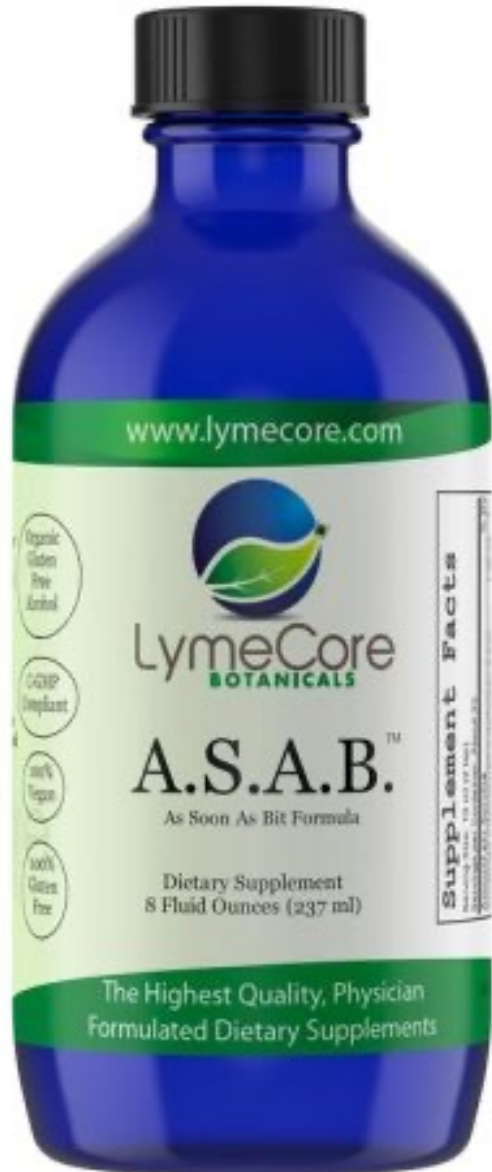
► SIG: 2 tsp TID

Antimicrobial herbal formula to be used as soon as the bite is found with broad spectrum antimicrobial action for Lyme and possible co-infections (while you are waiting for tick testing results):

► Tincture w/ equal parts:

Artemesia annua
Uncaria tomentosa
Cryptolepis sanguinolenta
Houttuynia cordata

► SIG: 1 tsp TID



5 Goals for the Herbal Treatment of Tickborne Diseases

An evidence-based holistic approach using herbal interventions provides a comprehensive strategy for managing TBDs and mitigating the harmful effects on the body.

1

**Reduce
inflammation**

2

**Balance the
immune system**

3

**Inhibit the
destruction of
ECM, collagen,
endothelial cells**

4

**Kill infectious
organisms and
opportunistic
infections**

5

**Effective
Detoxification
and Elimination**

#1 Herbal Treatments Goals for TBDs: Reducing Inflammation

Herbal remedies have been shown to effectively reduce inflammatory cytokines and the cytokine cascade (Khan et al., 2019).

Primary Anti-inflammatory herbs: Chinese skullcap (*Scutellaria baicalensis*), Japanese knotweed (*Polygonum cuspidatum*), cordyceps (*Cordyceps sinensis*), kudzu (*Pueraria lobata*) (Vlachojannis et al., 2010; Li et al., 2017; Nishida et al., 2007; Wang et al., 2019).

•**IkB kinase inhibitors:** *Cordyceps* (Yoon, 2015), *Salvia miltiorrhiza* (Li, 2020), *Uncaria rhynchophylla* (Kim, 2010), *Curcumin* (Kim et al., 2011; Duarte et al., 2010)

•**NF-κB inhibitors:** *Astragalus* (Dong, 2020), *Cordyceps* (Park, 2018), *Eupatorium perfoliatum* (Shin, 2018), *Houttuynia cordata* (Lee, 2013), *Polygonum cuspidatum* (Park 2017), *Pueraria lobata* (Bulugonda, 2017), *Salvia miltiorrhiza* (Cheung, 2013), *Scutellaria baicalensis* (Li, 2016), *Withania somnifera* (Singh, 2007), *Curcumin* (Edwards et al., 2020; Shrestha et al., 2017; Xu & Liu, 2017), Melatonin (Shrestha et al., 2017), *Quercetin* (Ke et al., 2023; Zhang et al., 2017; Nair et al., 2006), Turmeric (Edwards et al., 2020), *Uncaria tomentosa* (Elgawish et al., 2019; Zeng et al., 2009; Akesson et al., 2003).

•**TNF-α Inhibitors:** *Andrographis* (Li, 2017), *Cordyceps* (Zhu, 2012), *Eupatorium perfoliatum* (Chakravarti, 2011), *Houttuynia cordata* (Park, 2005), *Scutellaria baicalensis* (Wu, 2020), *Salvia miltiorrhiza* (Peng, 2007) .

•**IL-8 Inhibitors:** *Cordyceps* (Das, 2021), *Isatis* (Fang, 2005), *NAC* (Zhou, 2021), *Polygonum cuspidatum root* (Quagliariello, 2021), *Curcumin* (Allijn et al., 2016), *Morinda citrifolia*/Noni (Oh et al., 2021), *Quercetin* (Wu et al., 2015).

•**IL-1β Inhibitors:** *Cordyceps* (Hu, 2014), *Eupatorium perfoliatum* (Chen, 2018), *Polygonum cuspidatum root* (Liu, 2018), *Pueraria lobata* (Zhu, 2014), *Salvia miltiorrhiza* (Ma, 2016), *Scutellaria baicalensis* (Hsieh, 2007), *Curcumin* (Ran et al., 2019; Laird et al., 2010; Pan et al., 2008), *Morinda citrifolia*/Noni (Oh et al., 2021), *Quercetin* (Yoon et al., 2011).

•**IL-6 Inhibitors:** *Andrographis paniculata* (Li, 2021), *Isatis* (Lotts, 2020), *Pueraria lobata* (Shukla, 2018), *Salvia miltiorrhiza* (Jang, 2003), *Scutellaria baicalensis* (Liu, 2019), *Curcumin* (Ran et al., 2019; Allijn et al., 2016), *Morinda citrifolia*/Noni (Oh et al., 2021), *Quercetin* (Niu et al., 2021; Saiki et al., 2018; Kandere-Grzybowska et al., 2006).

#2 Herbal Treatments Goals for TBDs: Balance the Immune System

Restoring immune system balance is crucial for recovering from TBDs (Stricker et al., 2007).

- **Ashwagandha** (*Withania somnifera*)

- Counteracts the exact modulation of the immune system that tick saliva and protozoa initiate and maintain to keep infection going (Bani, 2006).
- Adaptogenic herb - modulates the immune responses, helps balance Th1 and Th2 immune pathways (Jahanbakhsh et al., 2019).

- **Astragalus spp**

- Inhibitory effect on airway inflammation in a murine model of asthma through modulating the imbalanced relationship between Th1 and Th2 cytokines (Chen, 2014).

- **Cordyceps spp**

- With the lack of an ongoing inflammatory environment, CS primes DCs toward a Th1-type immunity, whereas in a potential inflammatory reaction, CS balances the over-reactivity of elicited Th1 immunity (Li, 2009).

- **Morinda citrifolia/Noni** (Kim et al., 2020).

- **Quercetin** (Ke et al., 2023; Park et al., 2009).

- **Cat's claw** (*Uncaria tomentosa*)

- Enhances Natural Killer (NK) cell activity.
- Exhibits anti-spirochetal properties (Farias et al., 2016; Sheng et al., 2017).

#3 Herbal Treatments Goals for TBDs: Inhibit the Destruction of ECM, Collagen, and Endothelial Cells

Preservation of Extracellular Matrix (ECM) and Collagen:

- TBD-causing organisms stimulate enzymes that degrade collagen and ECM proteins to aid their spread (Fischer et al., 2017).
- Herbal interventions, including Japanese knotweed (*Polygonum cuspidatum*), echinacea (*Echinacea purpurea*), ashwagandha (*Withania somnifera*), and skullcap (*Scutellaria lateriflora*), have demonstrated potential in inhibiting infection migration and preserving connective tissue (Efferth et al., 2017; Eliaz, 2017; Garbisa et al., 2001; McCulloch et al., 2017).
- **Inhibit cytokine cascade:** (as previously discussed)
- **Inhibit Aggrecan:** *Polygonum cuspidatum* root (Bushra, 2021)
- **Inhibit Hyaluronidase (HYL):** *Echinacea angustifolia*, which strengthens mucous membranes and skin (Yotsawimonwat, 2010), *Withania somnifera* (Machiah, 2006)

Inhibit MMPs (collagenases):

- **MMP-1 Inhibitors**
 - *Polygonum cuspidatum* root (Kang, 2018), *Asparagus officinalis* (Sriyab et al., 2021), **Curcumin** (Mun et al., 2009), *Morinda citrifolia*/Noni (Masuda et al., 2012), **Quercetin** (Lee et al., 2012).
- **MMP-3 Inhibitors**
 - *Polygonum cuspidatum* root (Kang, 2018), **Curcumin** (Zeng et al., 2019; Mun et al., 2009).
- **MMP-9 Inhibitors**
 - **Cordyceps** (Cai, 2018), NAC (Liu, 2017), *Salvia miltiorrhiza* (Kim, 2017), *Scutellaria baicalensis* (Chen, 2014), **Curcumin** (Zhu et al., 2020; Cao et al., 2015), *Mahonia aquifolium* (Damjanovic et al., 2020), Melatonin (Ates et al., 2022; Hazra et al., 2020; Qin et al., 2019; Guru et al., 2017), *Morinda citrifolia*/Noni (Lin et al., 2017; Basar et al., 2010), **Quercetin** (Hsieh et al., 2022; Kondo et al., 2020; Lu et al., 2018), *Taraxacum officinale* (Sigstedt et al., 2008).

Protect Endothelial Cells:

- *Polygonum cuspidatum* root (Ling 2007)
- *Salvia Miltiorrhiza* (Ling 2007)
- Hawthorn (Ling 2007)

#4 Herbal Treatments Goals for TBDs: Kill the Infectious Organisms Including Opportunistic Infections

Effective eradication of infectious organisms, including persister forms, is a critical aspect of TBD treatment (Feng et al., 2019).

Herbal remedies have been shown to have anti-microbial properties and may target persistent forms (Deng et al., 2011; Feng et al., 2019; Lai et al., 2019; Suberu et al., 2016).

- Japanese knotweed (*Polygonum cuspidatum*)
- Sweet annie (*Artemisia annua*/Artemisinin) (Feng, 2020)
- Andrographis (Feng, 2020)
- Cryptolepis (*Cryptolepis sanguinolenta*) (Feng, 2020)
- Teasel (Goc, 2016)
- Houttuynia (Hayashi, 1995)
- Garlic (Kolb, 2020)
- OLE (Borjan, 2020)
- Cat's claw (Weiss, 2018)
- Chinese Skullcap (*Scutellaria baicalensis*) (Feng, 2020)
- Black walnut (Feng, 2020)



This study provides the first convincing evidence that some of the herbs used by patients, such as Cryptolepis, black walnut, sweet wormwood, cat's claw, and Japanese knotweed, have potent activity against Lyme disease bacteria, especially the dormant persister forms, which are not killed by the current Lyme antibiotics. study co-author Prof. Ying Zhang



Evaluation of Natural and Botanical Medicines for Activity Against Growing and Non-growing Forms of *B. burgdorferi*

Jie Feng ¹, Jacob Leone ², Sunjya Schweig ³, Ying Zhang ¹

Affiliations + expand

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[Free PMC article](#)

Abstract

Lyme disease is the most common vector-borne disease in the US and Europe. Although the current recommended Lyme antibiotic treatment is effective for the majority of Lyme disease patients, about 10-20% of patients continue to suffer from persisting symptoms. There have been various anecdotal reports on the use of herbal extracts for treating patients with persisting symptoms with varying degree of improvements. However, it is unclear whether the effect of the herb products is due to their direct antimicrobial activity or their effect on host immune system. In the present study, we investigated the antimicrobial effects of 12 commonly used botanical medicines and three other natural antimicrobial agents for potential anti-*Borrelia burgdorferi* activity *in vitro*. Among them, 7 natural product extracts at 1% were found to have good activity against the stationary phase *B. burgdorferi* culture compared to the control antibiotics doxycycline and cefuroxime. These active botanicals include *Cryptolepis sanguinolenta*, *Juglans nigra* (Black walnut), *Polygonum cuspidatum* (Japanese knotweed), *Artemisia annua* (Sweet wormwood), *Uncaria tomentosa* (Cat's claw), *Cistus incanus*, and *Scutellaria baicalensis* (Chinese skullcap). In contrast, *Stevia rebaudiana*, *Andrographis paniculata*, Grapefruit seed extract, colloidal silver, monolaurin, and antimicrobial peptide LL37 had little or no activity against stationary phase *B. burgdorferi*. The minimum inhibitory concentration (MIC) values of *Artemisia annua*, *Juglans nigra*,

Recent
Study:

Herbals and
Borrelia
Burgdorferi



#5 Herbal Treatments Goals for TBDs: Effective Detoxification and Elimination

Ensuring proper detoxification at both the cellular and organ levels is pivotal in TBD management (Patrick, 2018).

- Herbal compounds that protect cells from oxidative stress, optimize cellular health, and contribute to tissue detoxification have been identified (Pizzino et al., 2017).
- Maintaining intestinal barrier integrity is essential to prevent the reabsorption of toxins into systemic circulation (Turner, 2017).
- Binders like chlorella (*Chlorella vulgaris*) and MCP (modified citrus pectin) are known to assist in detoxification (Eliaz et al., 2018).

Vigilance: Watch for Symptoms

Common Lyme Disease Symptoms:

- ✓ Headache (ranging from mild to severe).
- ✓ Cognitive Deficits (including "brain fog," difficulty concentrating, memory issues, and confusion).
- ✓ Mood Changes (such as depression and anxiety).
- ✓ Sleep Disturbances (difficulty falling or staying asleep, and unrefreshing sleep).
- ✓ Erythema Migrans (EM) Rash (a red, expanding bull's-eye rash at the tick bite site, but not in all cases).
- ✓ Flu-Like Symptoms (fever, chills, fatigue, muscle and joint aches, and headache in early stages).
- ✓ Joint Pain and Swelling (especially in larger joints like knees).
- ✓ Neurological Symptoms (numbness, facial paralysis (Bell's palsy), memory problems, and sleep disturbances).
- ✓ Heart Problems (rarely, irregular heartbeat (Lyme carditis), palpitations, rapid pulse).
- ✓ Eye Inflammation (redness and eye discomfort), intermittent blurry/double vision.
- ✓ Fatigue (profound and persistent).
- ✓ Muscle Weakness (decreased muscle tone).
- ✓ Lymph Node Swelling (especially in the neck, occasionally).
- ✓ Arthralgias, myalgias.
- ✓ Others: change in bowel function, pelvic pain, chest/rib pain, twitching, hormone imbalance, irritable bladder, sweats, chills, shortness of breath, cough, dizziness, hair loss, thyroid issues, chronic sore throat, intermittent hearing issues/ringing/buzzing, sensitivity to everything.

Diagnostic Symptom: Bull's-Eye Rash

- **Diagnostic Significance:** a bull's-eye EM rash is diagnostic of Lyme disease (CDC, 2022).
- **Presentation rates vary from 27% to 47%:** does NOT always accompany Lyme disease (Steere et al., 1994).
- **Timeframe:** The rash can appear 3 to 30 days after a tick bite (Wormser et al., 2006).
- **Mimicry:** The bull's-eye rash can mimic other rashes or insect bites, posing a diagnostic challenge (Branda and Strle, 2018).
 - Resembles conditions like contact dermatitis or tick bite reactions.
 - Does not always appear as a symmetrical, circular bull's-eye shape.
 - Requires a thorough differential diagnosis.
- **Even with lack of an EM rash, must consider the complex nature of Lyme and use a clinical diagnosis:**
 - Lyme varies in symptoms and presentations.
 - Clinical diagnosis considers diverse symptomatology which may include specialized laboratory testing (Marques, 2010).



Get Tested (Maybe): Accurate Testing for Tick-Borne Diseases

EM rash is diagnostic of Lyme, but **STILL TEST.**

Standard two-tier testing issues:

- ▶ ELISA - detects antibodies (IgM/IgG).
 - not sensitive, especially during the first few months; Positive in less than 30-60% of those infected with Lyme.
- ▶ If positive, Western Blot / immunoblot to confirm initial diagnosis .
 - tests for *Borrelia burgdorferi sensu stricto* species only. False negative more than 30% of the time.
- ▶ They don't evaluate the 18 other species of Lyme disease causing *Borrelia* collectively known as *Borrelia burgdorferi sensu lato*.
- ▶ Timing: testing too soon results in false negatives. Peak antibodies in 3-6 weeks (takes weeks for IgM, month + for IgG antibodies).
- ▶ Poor immune response = lack of antibodies and false negatives.
- ▶ They neglect co-infections (mycoplasma, anaplasma, ehrlichia, bartonella, babesia...).

The solution:

- ▶ Consult a Lyme-literate healthcare provider for further evaluation and proper testing options to identify Lyme and co-infections.
- ▶ Using specialized laboratories like Igenex ,Vibrant, Infectolabs for diverse tick-borne diseases and species.
- ▶ Using other lab findings and leading with a clinical diagnosis regardless of testing results.
- ▶ Use the [Start-Up Herbal Treatment Summary](#) previously discussed for a strategy for how to address the tick bite immediately, what to use if you tested the tick, and what to use if you did not test the tick.



*Thank
You*

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