



## There is no evidence that a single dose of doxycycline prevents Lyme disease.

The medical opinion that 2x100 mg doxycycline administered at the time of a tick bite prevents Lyme disease is based **entirely upon a single study, never reproduced, published in 2001.**<sup>1</sup> This study is based upon the incorrect assumption that the absence of a bulls-eye (“EM”) rash indicates that no infection is present. **Infection may be present even if no rash is observed.**

The conclusion that a single dose of doxycycline taken at the time of the tick bite prevents Lyme disease is **NOT SUPPORTED** by the data presented in the paper.

### Study Design

- People with self-removed ticks attached for less than 72 hours were recruited.
- Ticks were identified and observed for engorgement. The duration of attachment was approximated.
- The treatment group received 2x100 mg doxycycline. Control group received placebo.
- Patients were evaluated over a six-week period. **If patients did not develop a classic “bull-eye” EM rash they were determined to be free of infection.**

### Results and Discussions

- Of the 506 people who participated in the test, 9 developed a rash during the six week trial time – 8 in the placebo group and 1 in the doxycycline group.
- People who received the single dose of doxycycline were less likely to develop the bulls-eye rash during the six-week study period.  
*[Comment: Not all tick bites cause rashes. Bulls-eye rashes are seen on 10-30% of patients bitten. No rash does **not** mean there is no infection.]*
- Bites from nymph-stage ticks are associated with bulls-eye rashes, but no research has been done to determine whether bites from adult-stage ticks are or are not associated with a bulls-eye rash. This study was conducted on nymph-stage tick bites, and two adult tick bites.
- This study was not designed to detect Lyme disease if there was no bulls-eye rash.
- The 6 week observation period was not designed to detect chronic or late manifestations of Lyme disease.
- It was not designed to study the impact of doxycycline on preventing any other tick-borne illnesses.

*Nadelman et al. conclude that a single 200-mg dose of doxycycline after an I. scapularis tick bite can prevent the development of Lyme disease. Given the devastating consequences of Lyme disease, I agree that prophylaxis after a tick bite is advisable and could prevent the development of this serious illness. However, treatment with only 200 mg of doxycycline<sup>1</sup> after a high-risk tick bite may represent an early but inadequate measure. Such treatment could render a patient seronegative by blunting the immune response and only partially eradicating the spirochetes, while permitting the development of resistance and a more virulent infection with an atypical presentation.<sup>2</sup> The result would be a seronegative patient without an antibody response, with an evolving Lyme infection that does not meet the surveillance criteria of the Centers for Disease Control and Prevention,<sup>3,4</sup> and perhaps with a potential for antibiotic resistance after exposure to a low dose early in the course. Such a patient may escape diagnosis and treatment because of the false assurance conveyed by prophylaxis, combined with negative antibody tests.*

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[Additional letters and footnote references can be found here: [www.nejm.org/doi/full/10.1056/NEJM200111013451815](http://www.nejm.org/doi/full/10.1056/NEJM200111013451815)]

<sup>1</sup> Robert B. Nadelman, M.D., et al Prophylaxis with Single-Dose Doxycycline for the Prevention of Lyme Disease after an Ixodes scapularis Tick Bite. NEJM July 12, 2001 doi:10.1056/nejm200107123450201

## A Better Option

### Informed Consent

You should know that the American Medical Association's principles of Informed Consent advise that patients be told of ALL appropriate treatment options. The treatment guidelines of the International Lyme and Associated Diseases Society (ILADS) are the only clinical practice guidelines for the treatment of Lyme disease that comply with the Institute of Medicine's (IOM) Standards for Developing Trustworthy Clinical Practice Guidelines and follow the rigorous GRADE system for rating the quality of evidence and recommendations. This means they qualify as appropriate treatment. It is your right to choose to be treated according to these professional guidelines. If your medical provider is unfamiliar with these guidelines, they can be found here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4196523/>

### If you remove an attached tick from your skin...

Place the tick in a securely sealed zip-lock bag and send it to the University of Massachusetts Laboratory of Medical Zoology for analysis ([www.TickReport.com](http://www.TickReport.com)). The report will identify any pathogens in the tick, and you will have the information necessary to [decide](#) what to do next.

If you develop a rash while awaiting the results of the test, see your doctor immediately discuss your option to be treated in accordance with the ILADS Treatment Guidelines:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4196523/>.

When you receive your Tick Report results, carefully review them with your doctor to be sure your medications are appropriate for the pathogens carried by the tick.

### If you never see a tick, but do see a bulls-eye rash...

According to the CDC, you have a confirmed case of Lyme disease (*Borrelia burgdorferi*) and further testing for Lyme disease is not necessary. However, ticks carry more than Lyme disease, and you may want to have your blood tested for such pathogens as Babesia, Anaplasma, *Borrelia miyamotoi*, Bartonella, and others. You or your doctor can send away for a test kit from IGeneX in Palo Alto, CA, and ask your doctor to draw blood. IGeneX is a CLIA certified lab authorized to operate in New York. IGeneX's new Immunoblot Assay, more accurate than the commonly used two-tier tests, has been approved for use in New York State.

For more information, see Lyme Action Network's publication, **Learn the Facts** <https://bit.ly/2wFalbb>. Or visit [LymeActionNetwork.org](http://LymeActionNetwork.org).