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## Lifespan Lyme Disease Center

### Study Summary: Prevention of Lyme disease with Single Dose Doxycycline

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The purpose of this study was to determine whether Lyme disease could be prevented by giving people who know they have been bitten by a tick a single dose of doxycycline. This prevention method is called antimicrobial prophylaxis. The randomized, double blind, placebo controlled study was conducted in New York between May 1987 to December 1996. 482 patients were given a single 200mg dose of Doxycycline or a placebo if they had removed an attached *I. scapularis* tick from their body within the previous 72 hours. At regular intervals throughout the study the patients were monitored for the development of an Erythema migrans rash (the rash associated with Lyme disease) and their blood was checked for *Borrelia burgdorferi* antibodies.

The study concluded that Erythema migrans occurred at the site of the tick bite in 8 of the 247 subjects in the placebo group (3.2 percent), as compared with 1 of the 235 subjects in the doxycycline group (0.4 percent). They also found that bites from nymphal (immature) ticks were significantly more likely than bites from adult ticks to be associated with erythema migrans (8 of 142 [5.6 percent] vs. 0 of 97 [0 percent],  $P=0.02$ ). They determined that Lyme disease was transmitted significantly more often in ticks that had been attached for over 72 hours. As expected, they also found more adverse events in the Doxycycline group although none were serious. The primarily included nausea and vomiting which is a known side effect of Doxycycline.

**Take home message:** Doxycycline prophylaxis is effective at preventing Lyme disease in patients who have found an attached *I. scapularis* tick. **If you find a tick on your body, the Lifespan Lyme Disease Center suggests you call your doctor to discuss prophylaxis treatment** (one or two doses of Doxycycline). It is also important to note the significant difference between infection rates from nymphal ticks and adult ticks. This is most likely due to the fact that nymphal ticks are smaller and harder to spot, which means that they remain attached longer than adult ticks, which may be seen more easily. This correlates with the study's finding of an increased rate of infection in people who had had a tick attachment for longer than 72

hours. **Consequently, check yourself for ticks regularly to reduce your risk of Lyme.**

However, it is also important to note that only 3.2% of the people in the placebo group got Lyme. This is because most ticks do not carry Lyme disease. However, in this study 18.2% of subjects were bitten by another tick during the six-week study period. This highlights the high frequency of tick bites in the general population. Therefore, you should remain proactive about avoiding Lyme disease. See our prevention and tick removal section for more information.

To see the original article

visit: <http://www.nejm.org/doi/full/10.1056/NEJM200107123450201#t=article>

