

# LymeMDNews

LYME DISEASE RESEARCH FOUNDATION



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## SLICE STUDY FIRST RESULTS ARE IN!

I am pleased to report the first results from our *SLICE* study. They confirm what many of us have long suspected: that even after ideal early diagnosis and treatment of Lyme disease, some patients go on to develop persistent or recurrent symptoms.

What is new about this finding? Our *SLICE* study clearly shows that these symptoms are **not** due to depression, nor are they simply the aches and pains of "daily living".

Even more important is the negative impact that these symptoms have upon the individuals' ability to function. For example, there is a marked decline in physical and social activities among patients with persistent Lyme symptoms. This decline in function was seen at six months after treatment of their Lyme disease and may persist

for even a longer period of time.

These initial results from the *SLICE* study are critically important. Armed with these results about which Lyme disease patient gets better and which of them does not, we can go on to examine the blood-test biomarkers that may be associated with persistent symptoms. When biomarkers that correlate with a patient's symptoms are found, the stage will be set for better diagnostic tests and future studies to examine treatment interventions for those who are at risk of persistent illness.

It's an exciting time in LymeMD's pioneering work. Stay tuned! ---John Aucott



## LYMEMD AT CDC INTERNATIONAL CONFERENCE

The Lyme Disease Research Foundation team was invited to present two abstracts at this year's CDC's International Conference on Emerging Infectious Diseases, held in Atlanta, GA. Lauren Crowder, *SLICE* study coordinator and Dr. Mark Soloski joined Dr. Aucott to present advances in understanding the immune response to infection in Lyme disease. Data was presented on how women with Lyme disease display more clinical symptoms than do men with the disease and also are less likely to seroconvert following treatment.

Preliminary data showed that many symptoms were reported more often by the 37 women in the *SLICE* study than by the 40 men. Significantly more women than men reported joint pain, muscle pain, headache, back pain, heart palpitations, nausea, vomiting, anxiety, numbness and tingling, and changes in vision during at least one of six post treatment study visits with a physician *SLICE* researcher.

The second preliminary finding we observed in our cohort of patients was that women were less likely to develop a positive blood test on the antibody tests for serodiagnosis of Lyme disease. At the initial study visit, a similar proportion of men and women (about 60% of each) tested negative for Lyme disease using the Centers for Disease Control and Prevention's recommended two-tier testing criteria for serodiagnosis. However, at the second visit, which was performed immediately post treatment, 70% of women who tested negative at the first visit remained negative, compared with only 35% of the men who initially tested negative.

Additionally, polychromatic flow cytometry was performed on patient immune lymphocytes to

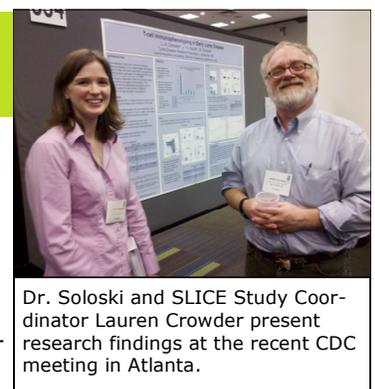
count the numbers and types of infection fighting T-cells. This analysis indicated that women had significantly higher frequency of CD4+ CCR5+ T-cells prior to treatment than did men (mean of 9.82% vs. 5.96%). These types of cells have been found to be associated with higher levels of inflammation in other medical disorders.

These findings suggest to us that there may be a difference between how men and women respond to infection with Lyme disease. One hypothesis for these differences is that there may be an immunological variation in response to *Borrelia burgdorferi* between men and women.

These findings highlight a need for additional research on sex-based differences in the effects of early Lyme disease. Such differences have been seen in other infectious disease, but have not been thoroughly explored in early Lyme disease.

Such study is important given that Lyme disease is the most common vector-borne infectious disease in the United States. Although many patients recover from acute infection with proper antibiotic treatment, a subset of patients develop [Post-Treatment Lyme Disease Syndrome](#) which can become a chronic illness with significant morbidity.

We will continue to explore these suggested differences both in this cohort and in future research studies.



Dr. Soloski and SLICE Study Coordinator Lauren Crowder present research findings at the recent CDC meeting in Atlanta.



LymeMD.org (our website) is the public face of the Lyme Disease Research Foundation. As such, it is important that we have a well designed site that can attract as many visitors as possible. Our goal is to in-

form the public about our current and planned research, and to educate physicians and the public about Lyme Disease and post treatment Lyme syndrome.

From the initial implementation of LymeMD in 2008, we used generic search engine optimization techniques, in which keywords are embedded in our site's code to enable search engines to find our site. This was somewhat successful in attracting visitors. In January 2009, we learned about a Google grant program for non-profits, that would provide funds to purchase advertising on Google. We applied for and were selected to participate. The Google grant program provides approximately \$100,000 per year to buy advertising on Google to enhance our outreach to potential visitors.

The results were amazingly successful with lots of traffic directed to our website through these advertisements. For the 6 month period from the end of November 2010, until the end of May 2011, we averaged 9,400 visits and 17,540 page views. In June 2011, we redesigned and implemented a revised website making it more dynamic, easier to navigate and access information. In the 8 month period after implementation, we averaged 9,512 visits and 20,335 page views. In addition, the average time spent on the site increased by about 43%.

In August 2011, our website hosted a quiz to test the ability of visitors to correctly identify whether or not pictured rashes were Lyme disease. A research paper is currently being written, using the data collected, and will be submitted for publication shortly. About 4000 people took the quiz during a 5 month period. During this period, the time spent on our site and the number of pages visited both increased.

If you have never visited LymeMD.org or have not been there lately, we would encourage you to visit. The quiz is still available to be taken, even though our study is closed; the link can be found on the *learn-about-lyme* page.

Comments and/or suggestions on LymeMD.org are welcome.

## MISSION STATEMENT

The Lyme Disease Research Foundation is a 501(C)3 public non-profit established in 2007 to address the lack of clinical research into the scientific understanding of Lyme disease and the persistent illness that may result from Lyme disease.

Our mission is to promote research that bridges patient care and science in order to advance our understanding of Lyme disease and its overall impact on human health.

Our goal is to promote research that leads to the discovery of improved biomarkers for the diagnosis and management of Lyme disease.

The strategy of the Foundation is to raise funds through individual and foundation to fund collaborative research programs at our nation's premier medical institutions.

## MAY IS LYME DISEASE MONTH

May is Lyme disease awareness month and for a good reason. With warm weather and outdoor fun the number of tick bites takes off every year. This year may be especially serious for Lyme disease transmission. One way to track increasing tick bites is by using the Internet sites on Google Trends. Using data from Google Trends will give you real time updates on what other people are doing as they search for information on the internet:

<http://www.google.com/trends/?q=tick+bite,+Lyme+disease>

Remember, prevention is the best way to avoid Lyme disease. Especially important tips include spraying your clothes with the tick killing natural chemical Permethrin. Staying on well-groomed trails and groomed grass will avoid much of the exposure that occurs in the tall grass and brushy areas of the out of doors.

Most importantly, don't ignore any signs of early Lyme disease. This is the time at which the infection is most easily

treated. The most reliable indication of early Lyme disease is an oval or round red rash called erythema migrans. Examples of the rash can be reviewed on our website at [www.lymeMD.org](http://www.lymeMD.org)

Also remember that summer illnesses accompanied with fever, malaise and achiness may be the only sign of Lyme disease. Lyme disease is especially important to consider when summer flu lacks the typical characteristics of a viral cold such as runny nose or cough.

Knowledge is our ally in early recognition of Lyme disease by avoiding tick bites and recognizing the earliest signs and symptoms of Lyme disease. For more information please see our education sites at [www.lymeMD.org](http://www.lymeMD.org)

