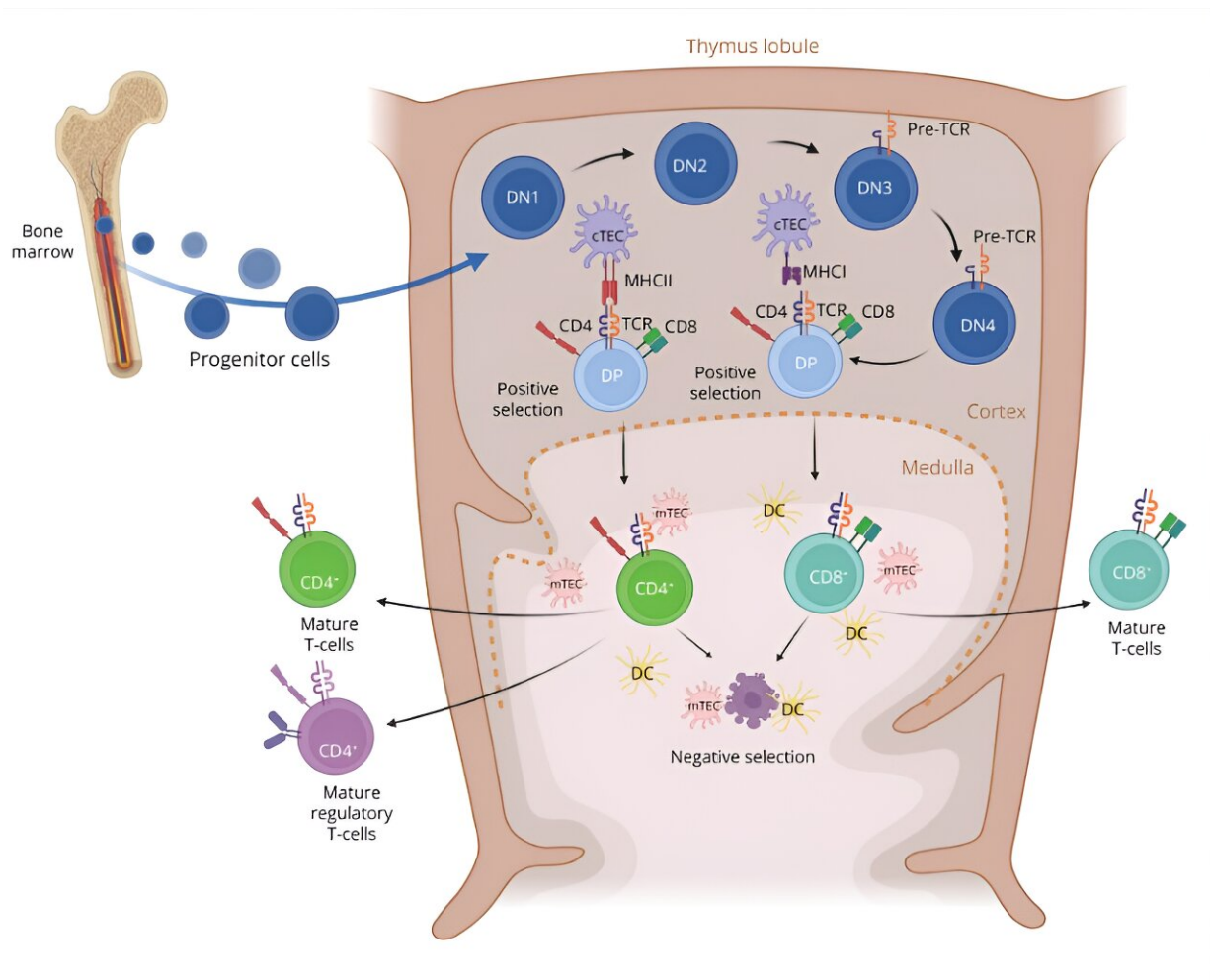


# Benefits of thymectomy in treating myasthenia gravis

July 2 2024, by Ellen Goldbaum



T cell development in the thymus. Credit: *Neurology* (2024). DOI: 10.1212/WNL.0000000000209482

The first-ever randomized study of the removal of the thymus gland in treating myasthenia gravis was conducted in 2016. Led by Gil I. Wolfe, MD, SUNY Distinguished Professor and the Irvin and Rosemary Smith Professor of Neurology in the Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo, that study definitively confirmed the benefit of thymectomy, even in MG patients without a chest tumor.

An extension study that Wolfe led and published in *The Lancet Neurology* in 2019 found that those benefits lasted for as long as five years following the procedure.

Then last year, a paper published in the *New England Journal of Medicine* raised questions regarding thymic removal, "causing quite a stir across medical and surgical communities," says Wolfe. The paper raised concern that removal of the thymus can approximately double the risk of cancer and death over the ensuing decade or two and possibly increase the risk of developing autoimmune disease. The paper generated a number of letters by clinicians who expressed concerns about its implications.

"There has always been some concern about thymus removal except in those circumstances when patients have an underlying tumor, such as thymoma, where removal is simply required," explains Wolfe.

## **No signal of concern**

"Due to this concern, investigators over the decades have searched for untoward impact of removing the [thymus gland](#) without a signal of concern being identified," says Wolfe.

"This recent paper raised the question again, and we felt obligated as part of the MG treatment community to provide some perspective on the

long track record of the safety of thymectomy in the disease state, to lay out all the cards in the deck so to speak, and point out pressing questions about this latest study's methodology and potential implications that were not really addressed either in the paper or in an accompanying editorial."

In April, Wolfe was senior author on an opinion piece published in *Neurology* titled "[Does Surgical Removal of the Thymus Have Deleterious Consequences?](#)" that responded to the *NEJM* paper.

Wolfe notes that thymectomy is a procedure that is exclusively done therapeutically, either in the presence of a tumor, when removal is required, or as a treatment for MG. However, he adds, thymus removal, usually partial, is fairly common during cardiac surgery in order to clear the surgical field. There is wide belief that thymus function is of marginal importance or obsolete from middle age onward, so it is felt to be disposable, akin to the appendix.

The opinion piece describes the function of the thymus gland as playing a crucial role in the "training" of T cells in early life, which are critical in being able to distinguish bacteria, viruses and other pathogens as foreign invaders.

"The thymus normally eliminates T cells that react to self-antigens, that is to your own tissues," says Wolfe. But, he adds, in certain immune-mediated diseases, including [myasthenia gravis](#), this process breaks down and one develops autoimmunity.

## **Improved outcomes**

He explains that in the most common type of MG, without underlying thymoma, thymectomy has been proven to improve outcomes using both objective and subjective metrics, reduce medication requirements including for corticosteroids, and reduce the need for hospitalizations

and rescue-type therapies in the disease.

"Statistical significance was seen for all of these outcomes versus patients treated with an identical medication regimen alone," says Wolfe.

"And again, this is not a new approach. It has been applied for over 80 years now; it was only in the last decade, however, that we were able to prove thymic removal's efficacy in a rigorous, controlled clinical trial. The belief that it worked was shared by most of us in the field for decades. Our team of investigators and research staff that numbered nearly 300 across the world was able to finally prove it."

**More information:** Henry J. Kaminski et al, Does Surgical Removal of the Thymus Have Deleterious Consequences?, *Neurology* (2024).  
[DOI: 10.1212/WNL.0000000000209482](https://doi.org/10.1212/WNL.0000000000209482)

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