

Lasers for Thyroid Tissue Regeneration

Dr. Izabella Wentz / April 4, 2017

Is it possible to get off thyroid medications or regain thyroid function without taking medications when you have Hashimoto's?

An excerpt from [*Hashimoto's Protocol*](#):

Most physicians and endocrinologists will say that in Hashimoto's, hypothyroidism is irreversible and ends with complete thyroid cell damage, leading to a lifelong requirement of thyroid hormone medications.

However, this isn't always true! One study reported that thyroid function spontaneously returned in 20% of patients with Hashimoto's. These individuals will return to normal thyroid function even after having taken thyroid hormone replacement for many years and may be weaned of thyroid hormones safely [1,2]

Studies show that once the autoimmune attack ceases, the damaged thyroid has the ability to regenerate. Thyroid ultrasounds will show normal thyroid tissue that has regenerated, and the person will no longer test positive for thyroid antibodies. [3]

In some cases, the person will become hyperthyroid, and the dosage of their medications will need to be reduced. In other cases, other individuals may find that the thyroid hormones become "built-into" their physiology and that the presence of the external hormones will suppress their internal thyroid hormone production. Thus, the recovery of thyroid function in these individuals becomes more difficult to "catch."

Physicians can perform thyroid ultrasounds to look for normalization of thyroid tissue as well as check for thyroid antibodies. If thyroid appearance on ultrasound normalizes and antibodies are in the remission range, a trial of slowly tapering thyroid medications may be attempted.

Additionally, researchers report that a test can be done by administering TRH (Thyroid Releasing Hormone), which will cause an increase in T3 and T4 if the thyroid has recovered. While this test is the best tested to determine if the person can be weaned off thyroid medications safely, it is rarely used outside of research.

[My experience](#)

I personally haven't seen too many reports of these "spontaneous regenerations of thyroid tissue," rather, I work with clients who take action to induce remission of their conditions, and in

some cases, these clients also show a regeneration of thyroid tissue. In addition to the people I've worked with directly, I've corresponded with readers who have induced remissions and regenerations of their thyroid glands.

Just to back up here, I want to state that weaning off thyroid hormones is never the first thing I recommend for people with Hashimoto's. Rather, my first recommendation is often to optimize thyroid hormones by using thyroid medications!

This is because your first plan of action should be to make yourself feel better. You are not going to feel better if you are thyroid hormone deficient. Optimized thyroid hormones play an important role in your body and will accelerate your healing. The fastest way to optimize your hormones is to take them externally, as a medication.

I've written a great deal about optimizing medications, and my new book [*Hashimoto's Protocol*](#) has an entire chapter on optimizing thyroid hormones that also addresses the latest innovations, old school remedies for tissue regeneration, and the common questions asked by readers!

As you're optimizing your hormones, it's also important for you to adjust your lifestyle and address any imbalance in your body that has resulted from your condition and/or has led you to develop the conditions.

This is where eliminating toxins like fluoride from your life, addressing your stress response, and improving your digestion and nutrition come into play.

With these interventions, you will feel significantly better, and in many cases, you may be able to reduce or eliminate the attack on your thyroid. This can be measured objectively by your thyroid antibodies. You should see them reduced to under 100 kU/L. The lower the better, but under 100 kU/L seems to be a good number where there is more healing than damage happening.

If the attack is not fully eliminated, you will also need to follow advanced protocols like clearing infections, toxins, and traumatic stress, until the autoimmune attack is fully addressed.

Only then, when you no longer have thyroid antibodies, and your body is healing at a faster rate than it is destroying itself would I ever consider weaning off medications.

At that point, you would gradually reduce the dose of medication UNDER PHYSICIAN'S SUPERVISION.

Weaning thyroid medications

Some people will present with hyperthyroidism as their bodies begin to heal and they begin to absorb more of their thyroid medications or begin to produce more of their own hormones as thyroid tissue regenerates.

Seeing a person with palpitations and a suppressed TSH will encourage most physicians to lower the dose of thyroid medications.

Thyroid medications should never be stopped abruptly, due to the complicated feedback mechanisms of our hormones. You want to give your body an opportunity to slowly get used to producing thyroid hormones thus, thyroid medications should be reduced very gradually under the supervision of a physician. A dose reduction of 25 mcg equivalent of levothyroxine every 4-6 weeks, supported by lab tests is the safest bet.

Coming off thyroid hormones too early when you still have symptoms, triggers, and antibodies on board, and when your thyroid has not regenerated can be devastating and delay your healing.

So now that you know the warnings, precautions, and order of operations, let's go deeper into the factors that predict success in weaning off thyroid medications that I've observed.

- A younger age (children seem to regenerate thyroid tissue faster, as do younger people)
- Diagnosis during the subclinical state, i.e. starting lifestyle changes sooner than later
- A short duration of the disease/taking thyroid hormones

Some of the interventions that can help you successfully wean off thyroid hormones include getting off gluten, getting thyroid antibodies in the remission range (under 100 kU/L, but the lower the better), getting plenty of rest, using an infrared sauna, resting/physical relaxation that helps your body go from fight and flight to rest and digest, getting your nutrients (especially selenium, vitamin D and ferritin) in balance and eliminating of toxins/infections within the body/gland.

My book, [*Hashimoto's Protocol*](#) focuses on helping you to identify and remove your triggers, like gluten sensitivity or a nutrient deficiency, adjusting your nutrition to support your blood sugar and nutrient deficiencies, helping your body eliminate toxins, and reducing your stress response.

However, even with all of your ducks in a row, not everyone will be able to reduce and eliminate the need for thyroid medications. Even in doing everything right, not everyone heals at the same rate. This is where interventions for accelerating thyroid tissue healing can really help!!

Low Level Laser Therapy (LLLT)

Researchers in Brazil have been studying the effects of low level laser therapy on the thyroid gland in Hashimoto's thyroiditis, and the results have been astonishing!

Most significantly, they found that all patients who received the therapy were able to reduce their levothyroxine dose, while 47% were able to discontinue levothyroxine and have normal thyroid function during the 9-month follow-up.

Additionally, LLLT can increase Transforming Growth Factor B (TGF-B), which is a cytokine that helps to induce and maintain the tolerance of self thus, also reduce thyroid autoimmunity.

Lasers that emit LLLT are also known as “cold lasers.” and have shown to regenerate various tissues when the therapy is applied directly over an organ. This therapy is known as “photobiomodulation” and can be achieved using a laser or an LED device.

LLLT can increase circulation in the thyroid gland and increase thyroid hormone levels in animals. While most body organs are not accessible to laser therapy, the thyroid gland is close enough to the skin surface so that the laser will be able to penetrate it.

Additionally, this therapy is painless, non-invasive, and low-cost and carries a low risk as it does not use ionizing radiation!

Here’s a brief summary of four different studies that were done with LLLT in Brazil:

In their initial pilot study, researchers tested LLLT on 15 patients who had Hashimoto’s and were treated with levothyroxine. Patients received 10 applications of LLLT (830 nm, output power 50 mW) in continuous mode, twice per week for 5 weeks over the thyroid gland.

Thirty days after the LLLT intervention, they began to see improvements on the thyroid ultrasounds. Thyroid antibody levels began to decrease within two months of the LLLT, and thyroid function began to improve and continued to improve until it reached a peak at 10 months post treatment.

Thirty days after the LLLT treatment, medications were discontinued and then reintroduced, if needed. Researchers tested levels of thyroid hormones, TPOAb, and TgAb, at 1, 2, 3, 6, 9, months after stopping the levothyroxine. 47% of the patients were able to stop levothyroxine all together and maintain normal thyroid function. The rest were able to reduce their dose of medication.

- The average levothyroxine dose dropped from 96 +/- 22 mcg/day, to 38 +/- 23 mcg/day.
- Out of 15 people, 10 saw a reduction in thyroid antibodies, while two did not see a change, and three saw an increase. The mean TPO level reduced from 982 to 579 over the course of the study. The greatest improvement was from 2354 to 135.
- With respect to TG antibodies, 8 people saw a reduction, 5 people did not see a change, and 2 saw an increase. The mean TGAb dropped from 650 to 517, while the greatest reduction was from 966 to 35 in one person.
- Before the treatment, 20% had reduced thyroid volume, 27% increased volume and 53% normal volume. After the treatment, 43% of the people who had an abnormal thyroid volume saw that their thyroid size normalized. The remainder also saw an improvement towards normalization, reaching near normal values. Thus this therapy may also be helpful for reducing goiter size.

This group also performed a randomized, larger placebo-controlled trial, of 43 patients in 2011.

The results showed:

- a reduction of levothyroxine dose from a mean of 93 mcg to 38 mcg (with 95.7% of treatment group being able to reduce or stop medications...47.8% no longer needing thyroid medications)
- a reduction in TPOAb, mean 1289 to 656 (around 50% reduction)
- a reduction in TG antibodies, 720 to 656
- a normalization of thyroid volume (in 66%)
- and less infiltration of the thyroid gland on ultrasounds (meaning fewer inflammatory cells were present). Echogenicity index on thyroid ultrasound was improved in 95% of the study group, meaning that their thyroid gland had less damage and fewer white blood cells on ultrasound.

The materials and methods used in the study

Patients received thyroid ultrasounds and a surgical pen outlined the boundaries of their thyroid gland. They received 10 applications of LLLT (830 nm, output power 50 mW) in continuous mode, twice per week for 5 weeks over the thyroid gland (70 J/cm² for 40 seconds in each spot). The laser that was used was from Thera Lase, DMC, San Carlos, Brazil, Beam area of 0.02827 cm cubed. Similar lasers are used in dental procedures. [4-7]

At present moment, this therapy is still considered experimental and only performed at the Thyroid Outpatient Clinic of the Endocrinology and Metabolism Department at the Hospital das Clínicas, Faculdade de Medicina da Universidade de Sao Paulo in Brazil. The therapy is not FDA approved, however, individual doctors may be able to utilize this therapy with their patients as an “off-label” use. The researchers noted that the effects of the therapy may not last forever; a person may need to go in for “maintenance” on an annual basis. However, when used along with the Root Cause Approach of removing triggers, this therapy can potentially result in a *functional cure* of Hashimoto’s for additional people.

Please note, this therapy has not been tested on people who take immunosuppressants like corticosteroids, in those with thyroid nodules, nor in those with hypothyroidism from postpartum thyroiditis or Graves disease.

Furthermore, there is some evidence that taking antioxidants, like vitamin C, selenium, and N-Acetylcysteine (three supplements that are normally really helpful for Hashimoto’s), may negate the effects of the LLLT. Steroid medications and anti-inflammatory medications may also make it less effective. This is because the therapy works to produce healing by initially *increasing* oxidative stress in the thyroid gland. The antioxidants/anti-inflammatories may block this initial upregulation that sets off the healing cascade. [8]

Additionally, if you have had your thyroid gland destroyed, removed surgically or if you were born without a thyroid, the LLLT is not likely to work. However, [stem cells](#) may be a helpful tool that can regenerate a thyroid gland that has been damaged, and even surgically removed! More about that to come in future posts! [9]

I have been working with laser companies, clinicians, and research institutions to attempt to facilitate the introduction of this therapy into the United States and Europe. I even thought about starting my own medical device company [until I found out that I would need a billion dollars to do so, lol- if you know any billionaires, send them my way :-)].

While we're making progress, the process has been slow and challenging.

I hope that this information helps you on your journey!

PPS – I share more strategies for regenerating thyroid tissue in [Hashimoto's Protocol](#).

PPS – If you are a clinician that is offering this therapy, please let me know, as I am starting a database 😊 If you're not yet offering this therapy, let this be a call to action for you to start offering it!

References

1. Nanan R, Wall JR. Remission of Hashimoto's Thyroiditis in a twelve-year-old girl with thyroid changes documented by ultrasonography. *Thyroid* 20(10), 2010
2. Davies, TF. Pathogenesis of Hashimoto's thyroiditis (chronic autoimmune thyroiditis) Ross, DS. UpToDate
3. Takasu N et al. Test for recovery from hypothyroidism during thyroxine therapy in Hashimoto's thyroiditis. *Lancet* 1990 Nov 3 336 1084-1086
4. Hofling DB, et al. Effects of Low-Level Laser Therapy on the serum TGF-B1 Concentrations in individuals with autoimmune thyroiditis. *Photomedicine and laser Surgery*, Vol 32, 8, 2014
5. Holding DB et al. Low-level laser therapy in chronic autoimmune thyroiditis: A Pilot Study. *Lasers in Surgery and Medicine* 42: 589-596 (2010)
6. Hofling DB et al. Low-level laser in the treatment of patients with hypothyroidism induced by chronic autoimmune thyroiditis: a randomized, placebo-controlled clinical trial. *Lasers Med Sci* (2013) 28:743–753
7. Hofling DB. Assessment of the Effects of Low-Level Laser Therapy on the Thyroid Vascularization of Patients with Autoimmune Hypothyroidism by Color Doppler Ultrasound. *ISRN Endocrinology*, 2012
8. de Freitas, Lucas Freitas, and Michael R Hamblin. "Proposed Mechanisms Of Photobiomodulation Or Low-Level Light Therapy". *IEEE Journal of Selected Topics in Quantum Electronics* 22.3 (2016): 348-364. Web.
9. Anita A. Kurmann et al. Regeneration of Thyroid Function by Transplantation of Differentiated Pluripotent Stem Cells. *Cell Stem Cell*, October 2015 DOI: [10.1016/j.stem.2015.09.004](https://doi.org/10.1016/j.stem.2015.09.004)

Resources

Dr. Kirk Gair from West Covina, CA, who is also a Hashimoto's patient, has used cold lasers in his clinic since 2004 and has developed protocols that combine LLLT with chiropractic modalities and is working to train other doctors and spread awareness about low level laser therapy with autoimmune thyroid disease. Dr. Kirk Gair's website:

<http://www.laserpainreliefinfo.com/>