

Glutathione recycling for autoimmune disease

During the past couple of years I continued my investigations into taming autoimmune disease and addressing the mechanisms that underlie it (and will always continue to do so). I found some approaches that looked promising and began experimenting with them with my patients, as well as recruiting other practitioners I know to work with the same principles. I came across a few discoveries that have produced profound results. One is the concept of glutathione recycling.

Glutathione and stress

In the thyroid book I introduced glutathione, our body's most powerful antioxidant, and how integral it is to modulating the immune system. Ideally the body makes sufficient glutathione to help keep everything running smoothly, however it becomes depleted in the face of extreme or chronic stress.

[Take the Oral Tolerance Quiz](#)

Modern life bombards us with stressors, the most common being ongoing insulin surges from sugary, high-carb diets, immune aggravation from food intolerances, chronic gut infections (too much bad bacteria or parasites), hormonal imbalances, lack of sleep, and of course our hectic, information-overloaded lifestyles.

Many people suffer from all of the above on a daily basis and also may smoke, drink too much, or even overtrain athletically, compounding an already precarious situation. Of course autoimmune disease itself is a significant stressor, further depleting the body's precious supply of glutathione.

In fact, I might go so far as to say it is difficult for the body to produce an autoimmune attack if the glutathione system is functioning properly.

Before I can explain how glutathione recycling works, I first need to explain more about how specifically glutathione protects us. Glutathione is like the bodyguard or Secret Service agent whose loyalty is so deep that she will jump in front of a bullet to save the life of the one she protects. When there is enough of the proper form of glutathione in the body to “take the bullet”, no inflammatory response occurs. However when glutathione becomes depleted it triggers a destructive inflammatory process.

Glutathione recycling explained

Glutathione *recycling* is a separate function from just boosting glutathione levels through a liposomal cream, intravenously, a nebulizer, a suppository, or other means. These forms of glutathione delivery will help one’s antioxidant status but they do not raise levels of glutathione *inside the cells*. Glutathione is the main antioxidant for mitochondria, the little factories inside each cell that convert nutrients into energy. Some cells have more mitochondria than others depending on the cell’s function. This is important because an autoimmune disease destroys the mitochondria in the affected cells, thus causing tissue destruction, and glutathione protects these mitochondria.

Reduced glutathione versus oxidized glutathione

But not just any form of glutathione does this—it needs to be *reduced glutathione*. There are two main forms of glutathione in the body: reduced glutathione (GSH) and oxidized glutathione (GSSG).

Reduced glutathione, or GSH, is the bodyguard who “takes the hit” from free radicals that damage cells. Free radicals are molecules that are unstable because they have unpaired electrons and are looking for another electron to steal in order to become stable. They steal electrons from the mitochondria, thus destroying them and causing inflammation and degeneration.

However when there’s plenty of GSH in the cell, the GSH sacrifice themselves to the free radicals—throwing themselves in front of the bullet—in order to protect the mitochondria. Thus the GSH ends up with an unpaired electron and becomes unstable, at which point it becomes GSSG, or oxidized glutathione, which is technically a free radical itself.

- *Glutathione peroxidase* triggers the reaction of GSH to GSSG, which is when glutathione “takes the hit” to spare the cell
- *Glutathione reductase* triggers the conversion of GSSG back to useable GSH.

These enzymes come into consideration when we look at how to support the glutathione system nutritionally.

The link between poor glutathione recycling and autoimmune disease

Studies show a direct correlation between a breakdown in the glutathione system and autoimmune disease. **The ability to constantly take oxidized glutathione and recycle it back to reduced glutathione is critical for managing autoimmunity.**

Fortunately studies also show various botanicals, nutritional compounds, and their cofactors have been shown to activate glutathione reductase and the synthesis of reduced glutathione. By boosting this enzyme and supplementing glutathione levels we can increase glutathione levels and glutathione recycling to quench inflammation once it starts, or, even better, to prevent inflammation in the first place.

Studies have also shown that efficient glutathione recycling helps boost the TH-3 system, the branch of the immune system that helps balance the TH-1 and TH-2 systems and prevent autoimmune reactivity. (I explain TH-1 and TH-2 systems of immunity in my book.) Proper glutathione activity not only helps protect cells, research shows it also modulates cell proliferation and immunity, and helps tissues recover from damage.

[Take the Oral Tolerance Quiz](#)

Glutathione recycling helps repair leaky gut

Good glutathione recycling helps tame autoimmune diseases in another way. One thing I have found universal in all my autoimmune patients is poor gut integrity. They all suffer from some degree of leaky gut and repairing the gut is vital to the recovery process. Studies show glutathione may play an important role in gut barrier function and the prevention of intestinal inflammation.

Supporting glutathione recycling

So how do we support glutathione recycling? The first thing is to reduce the stressors depleting this vital system. The bulk of my thyroid book is devoted to this: balancing blood sugar, addressing food intolerances, restoring gut health, and managing adrenal function are foundational.

Other considerations are neurotransmitter imbalances and hormonal imbalances, which may require specialized guidance from a qualified health care practitioner. And of course making any lifestyle changes you can, such as getting enough sleep, paring down an overactive schedule, making exercise a priority each day, creating time to do things you love, and so on.

Once you have addressed these factors (which for many people can actually take care of the problem) and autoimmune dysfunction persists, then boosting glutathione recycling may be necessary. Below I cover the basic botanicals and nutritional compounds researchers have found support glutathione recycling pathways.

- **N-acetyl-cysteine (NAC):** NAC is a key compound to glutathione activity. It is rapidly metabolized into intracellular glutathione.
- **Alpha-lipoic acid (ALA):** ALA directly recycles and extends the metabolic life spans of vitamin C, glutathione, and coenzyme Q10, and it indirectly renews vitamin E, all of which are necessary for glutathione recycling.
- **L-glutamine:** Research has shown that l-glutamine is important for the generation of glutathione. It is transported into the cell, converted to glutamate, and readily available to intracellular glutathione synthesis.
- **Selenium:** Selenium is a trace element nutrient that serves as the essential cofactor for the enzyme glutathione peroxidase, which converts GSH to GSSG so glutathione can “take the hit” by free radicals to spare cells.
- **Cordyceps:** Cordyceps has been shown to activate both glutathione and peroxidase synthesis in the body. It has also been shown to protect cells by engaging the glutathione enzyme cycle.
- **Gotu kola (Centella Asiatica):** Research has clearly demonstrated that oral intake of gotu kola rapidly and dramatically increases the activity and amount of glutathione peroxidase and the quantity of glutathione.

For people with severe leaky gut issues I suggest they take these compounds as they work on repairing leaky gut. Also, it's important to use these in conjunction with a liposomal glutathione cream discussed in the book. These compounds work more on recycling glutathione than boosting overall levels. This way the glutathione you do take, whether through a cream, an IV, a nasal spray, or other method is assured to stay in your body longer and get inside your cells where they can do their best work.

Glutathione recycling is imperative to taming autoimmune disease

Promoting glutathione recycling helps protect cell mitochondria, enhance tissue recovery, modulate an imbalance between TH-1 and TH-2, and boost immune regulation. The overall effect is to dampen both the autoimmune reaction and damage to body tissue. It also helps body tissue and the intestinal tract regenerate and recover. Keeping overall glutathione levels up by supporting glutathione recycling helps buffer the body's cells from the many stressors hurled at us each day.

Other practitioners and I have witnessed patients rebuild their glutathione recycling system. As a result they are much less or no longer sensitive to chemicals around them, they have fewer autoimmune flare-ups, and they recover much faster from their flare-ups.

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By Administrator October 25, 2014 41 Comments

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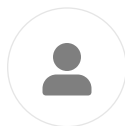


Elizabeth Morales

December 20, 2017 at 8:34 pm

can you recommend a liposomal glutathione cream Brand?

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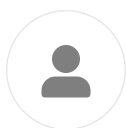
Jenny

December 28, 2017 at 12:40 pm

I wonder why they cannot make it into pill/tablet form.

[↩ Reply](#)

function from just boosting glutathione levels through a liposomal cream, intravenously, a nebulizer, a suppository, or other means. These forms of glutathione delivery will help one's antioxidant status but they do not raise levels of glutathione inside the cells, where it's most important.

[↩ Reply](#)**Ken**

January 9, 2018 at 11:41 am

There is now an optimized liposomal glutathione capsule on the market. For leaky gut repair it is recommended above to augment glutathione recycling with a glutathione cream. Would the liposomal capsules be an as good or possibly better way to boost glutathione levels than a cream?

[↩ Reply](#)**Susan (admin)**

January 12, 2018 at 10:27 am

Ken;

Yes, since the publication of this article, Dr. Kharrazian has started to use the glutathione recycler more often. Apex Energetics makes it in addition to the other forms of glutathione support:

<https://www.apexenergetics.com/search?q=glutathione>

SO IS THIS a new kind of glutathione that the body can accept orally since he said generally glutathione cannot be taken orally?

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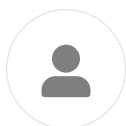
Dr. K. News

June 27, 2020 at 5:41 pm

Straight glutathione is not easily absorbed by the body. S-acetyl glutathione is absorbed more easily. And, it's also good to support glutathione recycling. In a recent lecture he mentioned NAC as a good support for glutathione. If you go to the videos section on his Facebook page you can find the lecture - it was all about glutathione.

<https://www.facebook.com/pg/datiskharrazianpage/videos/>

[↩ Reply](#)



robin

February 4, 2018 at 5:25 am

Apexenergetics has two recycling glutathiones. I have Hashimoto and Lyme. Which would you recommend ?
Thank you.

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ROBIN, THE GLUTATHIONE RECYCLER™ and the GLUTATHIONE Recycler™-SM are the same product; the -SM appendage simply means “small”, as in fewer capsules (90 vs. 30). For their liquid products, the same applies; fewer oz.

[↩ Reply](#)



Sherry Green

February 4, 2018 at 6:29 am

does glutathione raise estrogen

[↩ Reply](#)

Susan (admin)

February 5, 2018 at 10:16 am

Sherry;

Glutathione supports the liver’s detoxification pathways, so it should support your body’s ability to clear excess estrogen.

[↩ Reply](#)

How do I purchase the glutathione recycler?

[↩ Reply](#)

Susan (admin)

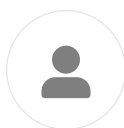
February 5, 2018 at 6:55 pm

Lindsay;

The glutathione recycler that Dr. Kharrazian uses is made by Apex Energetics, which is a practitioner brand: (<http://www.apexenergetics.com/products/k57>).

If your practitioner can get it, that is ideal, as they can guide you. If that's not a possibility, you might go through Acupuncture Atlanta (<https://www.acuatlanta.net/>) – it requires an online consult with one of their practitioners.

[↩ Reply](#)



sarah Mahoney

March 6, 2018 at 9:26 pm

I bought Trizomal Glutathione from Apex. Do you know if it needs to be taken with a glutathione recycler?

[↩ Reply](#)

Susan (admin)

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**Aaron Hiatt**

March 7, 2018 at 9:28 pm

I have a question about the process of someone taking intravenous glutathione and how they can have adverse side effects while others do not. Does this have something to do with improper recycling or too much being administered? and if so how does one reverse it?

[↩ Reply](#)**Susan (admin)**

October 2, 2018 at 6:49 pm

Aaron;

I think it has to do with sulfation pathways but I'm not sure my memory is accurate.

[↩ Reply](#)**Tii**

March 18, 2018 at 4:47 am

Hi I am currently taking 9000mg of it glutathione per week and I would like to switch to taking s acetyl glutathione. I was wondering how many mgs of the apex s acetyl glutathione would I have to take per week to make up the equivalent of 9000mg I've.

III, that would best be answered by Apex. Their website contact page is here: <https://www.apexenergetics.com/Contact-us>

[↩ Reply](#)

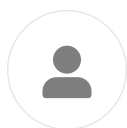
Rosemary McAlister

April 23, 2018 at 7:53 am

This is a very informative and valuable article.

There is an all botanical, clinically proven Nrf2 activator that does two things:

- 1) reduce oxidative stress by an average of 40% in 30 days
- 2) increase your own production of glutathione. After 120 days, it's upregulated 300%.

[↩ Reply](#)

Jacqueline Giuliani

June 19, 2018 at 1:10 pm

Hi Rosemary. I found your comment to be very interesting. Would you mind sharing this article/product that you mentioned to be clinically proven nrf2 activator as I would love to look into it. Thanks so much!

[↩ Reply](#)

auto-immune symptoms, & stay healthy, is it good protocol to take a Glutathione Recycler, S-acetyl-glutathione and all the supporting supplements together? (NAC, ALA, l-glutamine, selenium, cordyceps, gotu kola, milk thistle) and maybe glutathione patches as well?

Can I O.D. on glutathione? Thank you.

[↩ Reply](#)



Sabine Theresia Schmitt

August 8, 2018 at 6:35 am

There is liposomal Glutathion available too. Ich recommend strongly to check the ingredients on all Supplements you take. If you take Supplements with titaniumdioxide, siliciumdioxide, rice, starches, wheat, dairy, sugars, Corn, Antioxidans, flavours, etc your intake of toxins is rising. The best results you can achieve is with supplementing plus diet.

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Estrella

August 11, 2018 at 2:55 am

Is it advisable to use a liposomal glutathione cream on a thyroid (autoimmune) with nodules?

[↩ Reply](#)

Susan (admin)

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Sorry we can't be more specific.

[← Reply](#)

Susan (admin)

August 27, 2018 at 12:26 pm

Alana;

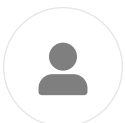
Supporting glutathione *levels* and supporting glutathione *recycling* are two slightly different functions, so supporting both simultaneously can be beneficial. Also, Dr. Kharrazian has a newer article posted recently here: <https://drknews.com/glutathione-autoimmune-disease/> which may help clarify how the factors you mentioned fit into each category. And yes, Dr. Kharrazian does have some patients use those items in conjunction with each other.

Personally if I'm doing a solid combo of supporting glutathione levels and recycling, I wouldn't bother with the patches.

We haven't heard of anyone OD-ing on glutathione.

Check out that new article, it does fill in some of the blanks!

[← Reply](#)



Tan

September 4, 2018 at 8:03 pm

Dear Dr K team — Susan, et al:

I was taking N-A-C daily for several years and now my MD — who follows

Thanks for any counsel!

[↩ Reply](#)

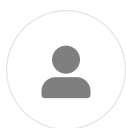
Susan (admin)

September 24, 2018 at 11:28 am

Tan;

As far as taking the NAC with glutathione, I'm not aware of any reason not to. Sorry, but I don't have the answer on the biofilm question.

[↩ Reply](#)



Rania Najjar

December 2, 2018 at 9:45 pm

Please I need to know if glutathione cream helps alleviate swelling in the thyroid .how much can I use and for how many days?
And is it safe for the liver?

[↩ Reply](#)

Susan (admin)

December 6, 2018 at 11:19 am

Rania;

body responds, and adjust accordingly.

Don't forget how important it is to support glutathione recycling, too (mentioned in the article) – doing that will help your body cope better with inflammation in all areas.

The liver needs glutathione in order to perform detox function at its best.

[↩ Reply](#)



Nancy Kiesling

October 23, 2019 at 7:37 am

Susan,

Is The glutathione recycler that you're mentioning on apex, a compilation of the botanicals and nutritional compounds that Dr. K lists above (the cordyceps, milke thistle, etc..) to take all together along with using the cream? Are you saying someone has come up with something that has all of what those do, in one place? Or is it something separate, and we should still consider taking the botanicals and nutritional compounds listed in addition to the recycler?

Sorry if that is confusing, just trying to understand and clarify. Thank you for your guidance and answering everyone's questions! Much appreciated!!

[↩ Reply](#)

Susan (admin)

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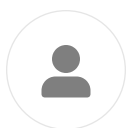
Thistle Extract, L-Glutamine, Alpha Lipoic Acid. For transparency: Dr. Kharrazian formulates some of the products for Apex (and uses them with his patients).

Since the article was posted, Dr. Kharrazian has moved to using the recycler more often. Also, Apex now has a product called Trizomal Glutathione that works on both the direct glutathione levels and recycling:

<https://www.apexenergetics.com/trizomal-glutathione>. If you go to their website and enter "glutathione" in the search bar, you can read about all the products.

I hope that helps!

 **Reply**



Amina Baas

May 27, 2020 at 1:15 pm

Hello,

Please let me know, where I can buy the Glutathione Recycler from Apex, in Germany?

I unfortunately couldn't find it.

Maybe I can buy it directly from you?

Thank you

Amina

 **Reply**

Dr. K. News

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I believe you can contact Apex via their Contact page, and ask if any practitioners in your area of the world have an account: <https://www.apexenergetics.com/>

[↩ Reply](#)



Lisa Anne May

July 26, 2020 at 9:42 am

Hi...Following a head injury,.I have been diagnosed with dysautonomia (POTS) & vestibular issues (especially in the eyes; no balance issues). My primary issues have been the vestibular dizziness , horrible gut issues, BP issues, hands turning bright red but most recently blood pooling in my feet & circulatory issues that is causing stinging pain in my feet. Separately, a Kinesiologist/chinese medicine doctor has diagnosed me with toxic metal (aluminum) issue. I'm working with a functional neuro and my vestibular & autnomic symptoms have improved except the stinging pain & circulatory issues in my feet. He has me applying Apex's Oxicell K-22 (glutathione & SOD cream) and using red/infrared light therapy on my feet which has helped but I still cannot walk very far and have constant pain. Would you recommend I use one of the other Apex glutatione products? Previously, a well-known functional doctor put me on 10 grams of glutamine and my vestibular & migraine type symptoms flared for 6 months and I was advised by several neurologists I should have not taken glutamine.

[↩ Reply](#)



Elaine Marshall

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combination with Glutathione Recycler. Take more than recommended on the bottle as dose depends on inflammation. Some people are taking 5-10 ml 3xday. Finances are usually the limiting factor in terms of dosage. If that's the case, you can also google making your own liposomal glutathione; it won't be as concentrated so you may need more. As with anything, start with small doses to see if you tolerate it. Resvero and Turmero Active, NeuroFlam, NeuroO2, and Nitric Balance are the other neuro-focused products in that line. You can investigate the ingredients (or read about them in his brain book) to see which might best apply.

[↩ Reply](#)

Brenda

July 29, 2020 at 7:03 am

I've had bizarre and random health problems my whole life with doctors never being able to find a cause for symptoms I've had. More than once I've had specialists tell me, "I've never seen anything like this in the 20, 30, 40 years I've been practicing medicine." It's been a common joke that if there is a 1 in a million chances of something medical - I'll be the one to have it. That being said, a few months ago (through random events) a doctor diagnosed me with Hashimoto's disease. Once doctors started looking at autoimmune diseases, a lot of past medical problems are making more sense. I'm currently working with a Doctor (a Board-Certified Chiropractic Neurologist and Physician Acupuncturist) who has studied autoimmune diseases for 20 years. He's started me on some daily supplements by Apex (Glutathione Recycler, EnzymixPro, and EnteroVite). Since starting them I've had incredible stomach pains

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for these specific supplements and I can't find them listed anywhere. This is the first site I've found the Glutathione Recycler mentioned and I'm hoping you can tell me, or direct me, to what kind of side effects have been reported. Thanks!!!

[↩ Reply](#)

Celine

December 2, 2020 at 2:47 am

Brenda, your story mirrors my life. When I started taking NAC and Glutathione supplements I got extremely sick and had terrible stomach pain and had to stop. Each time I tried again I got the same result. I learned from a consultation with a health practitioner that I had flooded my defective system inappropriately by starting with such a large dose, and he advised to start with the NAC only, and in tiny, tiny increments. That has worked for me and I'm building up slowly. By tiny I mean I opened a capsule of NAC into a dish and I wet the tip of my finger and dip it into the granules for a VERY small amount that is my daily "dose." So far so good. I wish you all the best of health; don't stop seeking answers that are right for you.

[↩ Reply](#)

Susan (admin)

December 3, 2020 at 10:45 am

July 30, 2020 at 10:36 am

Hi Brenda,

Sorry to hear you are going through this right now. Dr. Kharrazian is not available for personal questions on the website, but hopefully I can refer you to some information that will help in your search for answers.

In your shoes I'd talk to my provider about going back off all the supplements for a few weeks to first find out if the digestive issues subside. That could give you a pretty clear idea if they are involved. While the Apex line is high quality and they avoid using excess fillers, not everyone can handle all fillers/excipients, and it is certainly possible you are reacting to one of them (or, to an active ingredient, but less likely according to when I've heard Dr. Kharrazian talk about supplements). THEN: If the new symptoms go away, I'd add in just one supplement at a time, giving it a few weeks until you are certain it does not bring back the symptoms. If one does bring up the symptoms, I'd go off it until they subside (for however long it takes — or you could muddy the results), then try the next supplement in line. One at a time, until you have tested all of them. Then at the end, add any suspect supps back in (one at a time) as a second experiment to double check (or, maybe it will already be totally obvious that one is the culprit. Trust yourself). This is basically the same way we use the Autoimmune Protocol to test foods.

As far as what side effects might have been reported or studied, Dr. Kharrazian and his team do not have a list of research or articles. Doesn't mean no research has been done, but to give you any info I'd have to do an extensive web research, so that task will have to fall into your hands. Anyhow even if research shows one or more ingredients have caused reactions for subjects, that does not mean it does for you — and the elimination/provocation is the only true way I'm aware of to determine that for you individually.

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have all completed all available KI programs. NOTE: The list will be updated hopefully in the next few weeks to reflect those who completed the June Hashimoto's course. The date of the most recent update is visible in the upper left corner of the text.

And your comment about the 8 year old... love it!

[↩ Reply](#)

Leave a Reply



Joy

June 27, 2021 at 7:04 am

Hi! There is no liposomal glutation cream in my country but there is oral liposamal glutation and IV glutation options. Which one is more effective ?

[↩ Reply](#)

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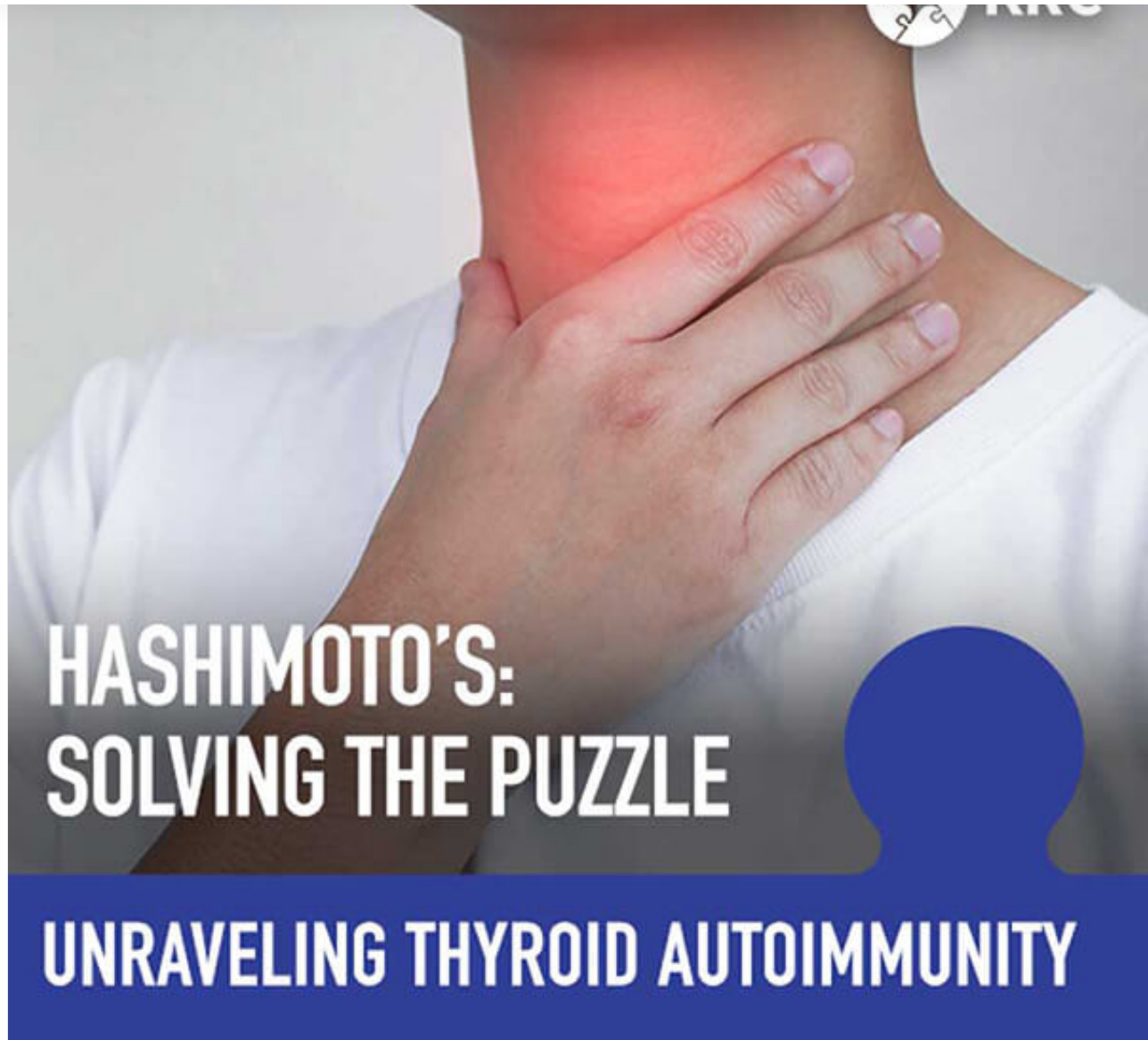
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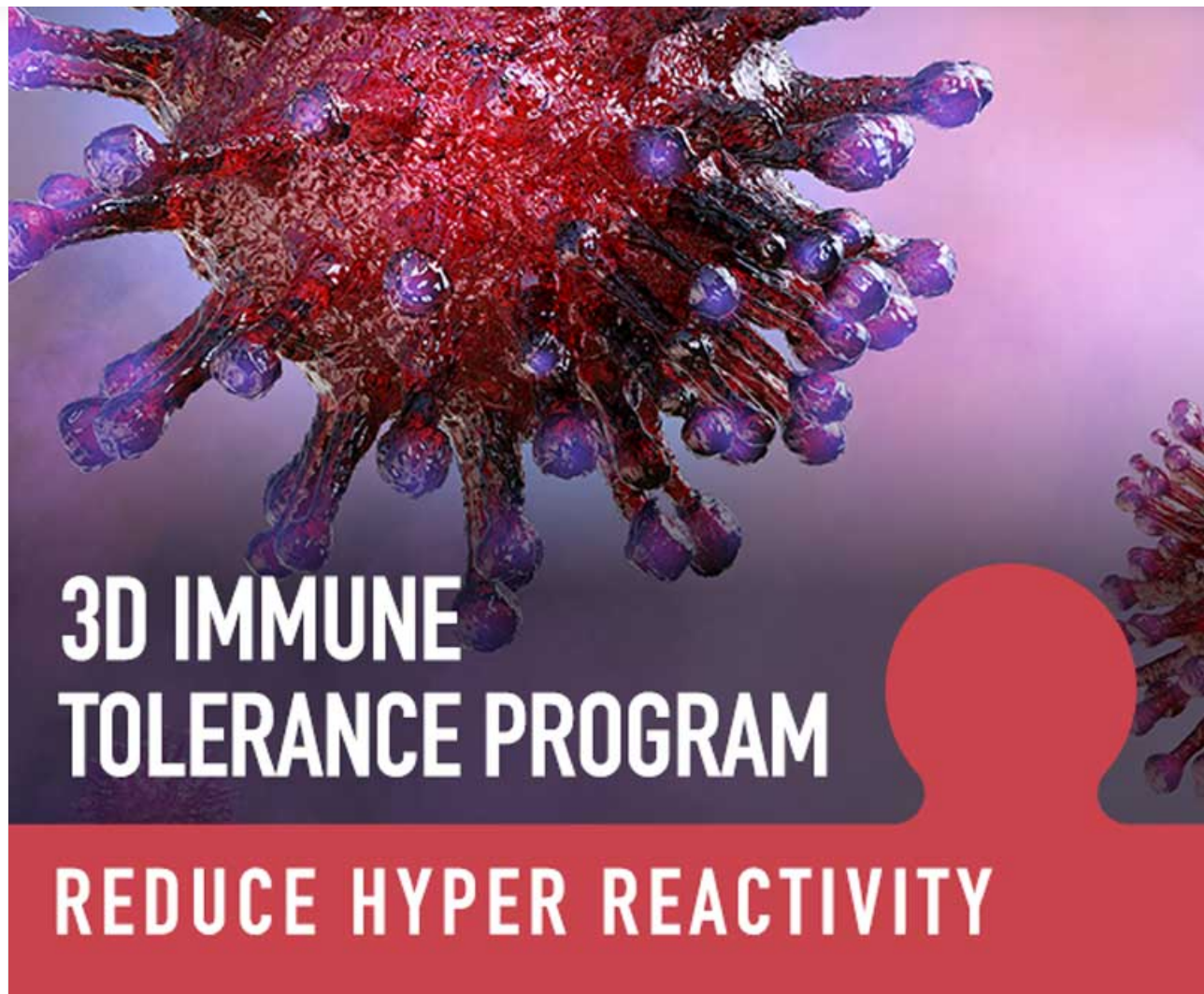
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**3D IMMUNE
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REDUCE HYPER REACTIVITY

The graphic features a 3D model of a virus or cell with a red, textured surface and purple, bulbous protrusions. The background is a gradient of purple and blue. A large red silhouette of a person's head is positioned on the right side of the graphic.

Save Your Brain Online Course



 **KRC**

The graphic shows a glowing orange brain with a blue aura. The KRC logo, which consists of a circle with four interlocking puzzle pieces, is in the top right corner.

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