

Chapter 9

The KPU Protocol and Heavy Metal Detoxification

IMPORTANT NOTE: *This chapter is not intended to be complete instructions for undertaking the KPU protocol; instead, it is intended to be an examination of some of the parts of the protocol which I believe to be the most important and the least understood. Therefore, to actually use the protocol, you will need other, more detailed instructions. I am focusing this chapter on the nuances of the protocol instead of the basic instructions for use, because I believe information on the former is much more difficult to come by, while information on the latter is commonplace on many discussion forums, books, and websites. My goal in writing this book has been to provide important, scarce information which can't easily be found online, instead of simply repeating information which is readily available on the internet.*

Also, some of the information in this chapter is subjective and based on my own personal experiences with the KPU protocol. This information should not be seen as the final word. Your doctor's

advice should be considered more accurate than this book.

Dosages will not be provided for the substances described in this chapter, as dosages must be personalized for each individual by a licensed physician.

Due to heavy metal release and circulation in the body as a result of the KPU protocol, this protocol can be dangerous. Use the KPU protocol only under the supervision of a physician who is familiar with heavy metal detox.

KPU treatment can be intense and extreme for some people and may not be appropriate for everyone.

A Primer on Heavy Metals

Before looking at the KPU protocol, it is important to understand that many, or most, Lyme disease sufferers have some degree of heavy metal poisoning. The most common culprits are mercury and lead. These heavy metals find their way into the innermost parts of Lyme disease bacterial colonies, and the microorganisms use the heavy metals to aid in their survival. As a result, Lyme disease recovery will not progress if heavy metal toxicity isn't addressed. Furthermore, heavy metal detox is typically required throughout the entire length of the recovery process—it is not a therapy which can be quickly accomplished and then forgotten about.

The KPU protocol is one protocol which helps to address heavy metal toxicity. However, understanding that heavy metal toxicity is a significant aspect of the Lyme disease complex is of critical importance, and heavy metals should be addressed one way or another, even if a person decides not to use the KPU protocol.

What Is the KPU Protocol?

Kryptopyrroluria, also known as KPU, is a condition in which the body becomes severely deficient in several nutrients, the most important of which are zinc and vitamin B6. Other nutrients which are sometimes helpful for treating KPU and which may be deficient include biotin, manganese, chromium, molybdenum, boron, arachidonic acid, and magnesium. Accordingly, the “KPU protocol” simply involves the supplementation of these nutrients. Sounds easy enough, right?

Although the KPU protocol is fairly simple, before you run out the door to buy all these supplements and start taking them, be aware that there’s a lot more to this protocol than taking a few supplements. Zinc, in particular, can cause heavy metal toxins in the body to be released, and you have to be ready for this eventuality if you are to succeed with the KPU protocol. Throughout this chapter, we will focus on the necessary precautions which must be taken when using the KPU protocol. Let’s take a closer look.

Heavy Metal Toxicity and the KPU Protocol

Many aspects of Lyme disease treatment can be accomplished by multiple and diverse means while still resulting in improvement and healing. The most obvious example of this is the killing of bacteria. Bacteria can be targeted via pharmaceutical antibiotics, herbal antibiotics, electromagnetic therapy, oxidative therapies, and other types of approaches. Combining and rotating these therapies can have the most beneficial results, but each individual therapy can have a significant impact as well.

On the other hand, certain parts of Lyme disease recovery do not respond to multiple modalities, but instead, to only one singular modality. In these cases, if you fail to employ the necessary treatment, you get zero improvement in the problem area.

One such case, in which there is only one correct treatment, is mineral deficiency (and many other types of nutrient deficiencies, for that matter). Replenishing missing nutrients is one of the goals of the KPU protocol. While the body can synthesize or recycle some kinds of nutrients (e.g., alpha lipoic acid can recycle vitamin C), minerals can only be present in optimal quantities in the body if they are added to the body through supplementation, diet, or environmental exposure. If you do not add minerals to the body, then it is impossible for them to exist in the body. This is what makes mineral monitoring and supplementation so important: not only do minerals play a critical role in the body, but the body has absolutely no way of getting them other than as a result of direct actions you take (knowingly or unknowingly) to get them inside the body. Some minerals, like mercury, are undesirable and get inside the body via inadvertent exposure. Other minerals, like zinc, magnesium and iodine, are desirable but may not be present in the body in adequate quantities, because you are not eating enough of them, you are not exposed to them through the environment, or your body cannot hold onto them once they are inside the body.

So, the KPU protocol plays a role in Lyme recovery which cannot be played by any other treatment or protocol, because it helps to restore mineral levels.

Zinc and the “Mother of All Detox Reactions”

According to various leading physicians, research demonstrates that zinc deficiency plays an important role in chronically ill patients, especially those with heavy metal toxicity. People typically think of heavy metal toxicity as too much of something, but it is also not enough of something—essential minerals like zinc. Zinc shares a similar structure to many toxic heavy metals, so when it gets displaced from its binding sites throughout the body, toxic heavy metals move in to take its place, making a person more toxic with these undesirable heavy metals (such as cadmium, aluminum, mercury and lead). As the heavy metals flood the system,

the zinc is kicked out. One physician has referred to zinc as the “gas pedal for heavy metal detoxification”—as zinc is supplemented during the healing process, it will compete with toxic heavy metals and reclaim the binding sites that were intended for it, hence, accelerating the process by which toxic heavy metals are removed from the system. The competition between zinc and toxic heavy metals for binding sites throughout the body is also what causes very significant detoxification reactions when zinc supplementation is initiated. While vitamin B6 is also deficient in patients with KPU issues, zinc is the main cause of the heavy metal detoxification acceleration that occurs during KPU treatment.

Furthermore, while heavy metals can occupy many parts of the body, the heavy metals which occupy zinc binding sites are the ones that do the most damage since zinc plays so many important roles in the body. Consequently, if zinc is replaced by heavy metals, then those heavy metals are, by definition, impairing all of the processes that zinc should be allowing. On the other hand, heavy metals which are located in fat stores or other non-critical places throughout the body are not nearly as harmful. For these reasons, replacing zinc is an obvious important step in the recovery process for many people. In fact, this is one of the things that makes the KPU protocol such an ideal heavy metal detoxification regimen: you are targeting and eliminating precisely the heavy metals which are doing the most damage and occupying the most sensitive parts of the body, and you’re immediately providing the body with the healthy replacement minerals that it needs to function normally.

This is what sets the KPU protocol apart from other detoxification protocols. However, this is also what makes it a potentially grueling treatment. Let’s take a deeper look into why the treatment can be so grueling but also so rewarding.

A top doctor who works with autistic patients has noticed that many of his autistic children are severely zinc deficient, yet zinc supplementation seemed to make these children dramatically worse. This doctor recounts

that for many years, this paradox was mystifying to him, and he was unsure about what to do with the whole zinc problem.

That is, until he viewed the problem of zinc deficiency in the context of KPU. He then found that aggressively supplementing zinc in his autistic children lead to severe and sometimes debilitating detoxification reactions. If the patient was properly supported and detoxed, and if they pushed through the reaction, then they would emerge on the other side with dramatic improvements in symptoms and functioning. Many supportive modalities were required to achieve these improvements, and if they weren't in place, zinc supplementation was often unsuccessful and could even lead to severe worsening of symptoms. Over time, it became evident that many people who suffer from autism also suffer from KPU.

The breakthrough for Lyme patients came when this doctor and others discovered that a large percentage of Lyme patients also had the condition, and that they, too, benefited from addressing KPU issues. In fact, it has been observed that Lyme disease and co-infections have a much more difficult time surviving in a body that has optimal levels of zinc. Remember that mineral deficiency cannot be addressed by anything other than adding back the deficient minerals into the body, and that zinc plays dozens of important roles within the body. Combine these two factors, and you can see why returning the body's zinc stores to optimal levels can have such an important impact on the recovery process.

Again, before you run out and buy zinc and vitamin B6 supplements, keep reading to become educated about some important considerations when addressing KPU.

Considerations in Heavy Metal Detox While Undergoing KPU Treatment

The heavy metal detoxification and release that occurs during treatment for KPU (due to zinc reclaiming the binding sites throughout the

body and the heavy metals which used to occupy those sites being liberated) is profound, dramatic and intense. In fact, many seasoned Lyme patients and practitioners have observed that the KPU protocol is the hardest protocol they've ever undertaken or supervised. When supplemental zinc displaces toxic heavy metals from their binding sites, a flood of toxic metal material is released into the blood stream and can easily overwhelm the body's innate detoxification pathways and mechanisms.

Therefore, a discussion of supportive treatments for the KPU protocol is, essentially, a discussion of heavy metal detoxification strategies. In order for one to succeed with KPU treatment, one must be able to succeed with heavy metal detoxification therapy. A detoxification support program comprising various supplements and protocols is not only recommended when undergoing KPU treatment; it is mandatory. If there is one point in this chapter that you remember, this is it.

Unfortunately, heavy metal detoxification, regardless of how or why the metals are displaced and released, is highly controversial and complex. Even the top experts in the field disagree on how to properly usher metals out of the body and on which supplements and substances are safe to use as proper chelators. If these metals aren't safely ushered out of the body, they can be redistributed in body tissues and wreak havoc.

In this controversial environment, one of the most important aspects of detoxification support is to know your own body and be willing to adjust your detoxification program based upon your individual response, regardless of the one-size-fits-all program your practitioner may be recommending. In the same vein, it is also crucial to work with an experienced health care practitioner who is not only aware of KPU and its various complexities, but is also willing and able to adapt your treatment program to your individual needs, tolerances and biological uniqueness. Keep in mind that many people have been severely and possibly permanently injured by improper heavy metal detoxification techniques due to redistribution of heavy metals.

The following discussion of how to support your detoxification pathways during KPU treatment and zinc supplementation will only scratch the surface of this complex and controversial topic. In order to safely use the KPU protocol, the reader should really have a much broader and more extensive education on heavy metal detoxification (especially the use of chelating substances) than what is offered in this book. The authority who I trust most and whose book I recommend is Andrew Cutler, PhD. His book, *Amalgam Illness: Diagnosis and Treatment*, contains essential concepts and protocols for heavy metal detoxification and should be read by anyone who undertakes KPU treatment. In my opinion, Andrew Cutler's methods are the most gentle and predictable, so for ultra-sensitive people, I would urge caution when it comes to heavy metal chelation, and I would read Andrew Cutler's book and its warnings about various improper methods of chelation. Basically, the more toxic you are, the more careful you will have to be, and the more likely it is that you will end up hurting yourself if you aren't making good decisions about heavy metal detoxification.

Furthermore, heavy metal toxicity creates unique challenges in Lyme patients, and these should be understood by anyone pursuing KPU treatment (see my previous books on Lyme disease for basic information about these challenges). People with Lyme disease are particularly susceptible to heavy metal toxicity, and Lyme disease and co-infections utilize heavy metals as a protective strategy in their lifecycles. So, be aware of what you are dealing with before you begin any kind of heavy metal program.

In summary, the important points to keep in mind are that detoxification reactions from the KPU protocol can be severe and dangerous, that each detoxification support program for use alongside zinc supplementation should be individualized based on your own unique biology, and that the following sections should not be seen as the final word, but instead as an introductory discussion.

Lastly, due to the intensity of the KPU program and heavy metal detox in general, I think it is possible that certain people shouldn't even undertake this treatment protocol. Whether you are one of these people is up to you and your doctor to determine.

Cleaning Up the Body Prior to KPU Treatment

Before someone even begins supplementing with KPU nutrients and minerals (like zinc and vitamin B6), it is recommended that they implement a heavy metal detoxification support program (including the use of systemic chelators and gut binders, which will be discussed later). This should be done long before supplementing with KPU nutrients. All accessible toxic heavy metal stores should be cleansed as thoroughly as possible prior to releasing more of them from zinc binding sites. The logic for this is simple: the supplements and chelators, which are supposed to help you deal with the heavy metals that zinc releases, will not be of much assistance if they are busy shuttling out the toxic heavy metals that have not been detoxed prior to initiation of the KPU protocol (heavy metal chelators have a limited capacity for removing metals from the body).

Heavy metal chelation all by itself can be very intense and uncomfortable, even in the absence of KPU treatment. Only after a person gets enough metals out of their body that they are relatively comfortable during chelation should they begin treatment for KPU.

I personally have the most faith in and have read about the most positive outcomes with the chelation protocol described by Andrew Cutler, Ph.D. If a person decides to undergo this method of chelation before embarking upon KPU treatment, the chelators Andrew Cutler recommends (including DMPS or DMSA along with alpha lipoic acid) should be well tolerated before zinc supplementation is initiated.

Why the Body Needs Help Detoxing Heavy Metals

The logic for supplementing zinc and other KPU nutrients, such as vitamin B6, makes sense. These nutrients are clearly important and natural substances that belong in the body.

But we are still left with questions. Why is heavy metal detox support even necessary during the KPU protocol, or before the protocol, for that matter? Why can't a person simply take zinc (along with the other KPU nutrients) and let the body naturally detoxify and remove the heavy metals that are released? After all, the body does have its own amazing and complex mechanisms for removing heavy metals. Some of the heavy metal detox supplements, substances and protocols we will look at are not natural or native to the body, so why use them? Some are even synthetic chemicals—like DMSA and DMPS—so, won't these add to the toxic burden in the body?

These are very important questions to answer if you are to muster the needed motivation to undertake an extensive and complex detoxification regimen. The simple answer to these questions is that, due to our industrialized society, coupled with the weakening of our detoxification organs which occurs in chronic Lyme disease, our bodies accumulate much more toxic debris than our elimination organs can handle. We pick up heavy metals from our environment, our foods, the materials used in constructing our homes, and other sources. The body knows that it is being overwhelmed by toxins it can't remove, so, in a defensive action, the body stores these heavy metals in body tissues to get them out of active circulation. For people who don't have Lyme disease or those who only have a small amount of stored toxins, the body's wisdom may be correct and may, in fact, not require additional support. Some people may live their entire lifetime with these toxic metals stored safely away in non-critical body tissue, like body fat.

However, the scenario is different for Lyme sufferers. In order to experience complete healing from Lyme disease, we have to eliminate all of these stored toxins, or they just continue to build up as a result of the weaknesses caused by Lyme disease. We must basically tell the body that we know better than it does. We force our will in this regard by taking heavy metal chelators that force the body to release these toxic heavy metals back into active circulation. However, when we make the body dump large quantities of toxic heavy metals into circulation, we are asking the body to do something that it cannot handle—we already know it can't eliminate these toxins on its own, which is why it stored them in body tissues in the first place. So, here are the answers to our original questions: we must provide extensive and complete detoxification support if we expect to come out the other side without being made much sicker and without having the heavy metals redistributed from the storage sites chosen by the body to much more sensitive organs like the brain and liver.

There are a few other factors which make Lyme sufferers different from the rest of the population. For example, the presence of infections in your body adds to the toxic burden, as these infections release their own biotoxins. If the net toxic burden is to decrease, then you must remove the biotoxins at a rate faster than the rate at which the infectious organisms in your body are growing, multiplying, and producing new biotoxins. Next, as if things weren't bad enough already, these infections can utilize the toxic metals in your body to create biofilm and other protective niches. Studies show that bacterial biofilms are composed of heavy metals, among other substances, and it is now believed and even proven, in some cases, that these toxic heavy metals are a vital tool that infections use to survive within the body. So, Lyme sufferers have more urgency than the general population to remove these heavy metals from the body. Although it should be noted that even people without Lyme disease have a higher risk of neurological diseases such as Alzheimer's and Parkinson's if they are harboring large quantities of toxic heavy metals.

Now you can see just how serious this topic is, and why it may be necessary for Lyme sufferers to take the plunge and undertake heavy metal detox. You can also see why I strongly suggest pursuing KPU treatment and heavy metal detox only while under the care of an experienced physician.

Ultimately, due to the peril involved, pursuing heavy metal detox may be just too dangerous for some people. Those who are extremely toxic or who don't have the required support to succeed in heavy metal chelation may be better off avoiding heavy metal detoxification and the KPU protocol entirely. While failing to remove heavy metals has serious risks, as we've just seen, removing them improperly and without adequate support may have even more severe risks. In this way, the problem of heavy metal detoxification is really a difficult challenge: perils and risks are inherent in all of the available directions you can choose, whether you choose to detox heavy metals or not.

To provide some encouragement, many Lyme sufferers eventually do get most of the metals out and all the good KPU nutrients in. Personally, after a grueling battle with heavy metals, I am now able to consume all of the chelators and KPU nutrients described in this book without experiencing any detrimental effects or healing reactions. It did take a long time, though, to get to this place, and it took careful, skilled help from many resources and health care practitioners.

Binders vs. Systemic Chelators

Now we will begin to look at some of the specific treatments used for heavy metal detoxification.

The topic of supporting the body's detoxification pathways during and before KPU treatment starts with a look at the difference between systemic chelating substances and gut-only substances known within the Lyme community as "binders." Understanding the differences between

these types of detoxifying agents is critical if you are to successfully usher out the heavy metals which are released during chelation and/or zinc supplementation.

We will first provide general definitions of gut binders and systemic chelators, and then we will look at the specific supplements which fall into these categories as well as how they can be used.

Binders

Heavy metals can and do accumulate in all major body organ systems and tissues. Systemic chelators (which we will examine next) are usually given orally and sometimes intravenously. They enter systemic circulation in the bloodstream and cause heavy metals to dislodge from their binding sites throughout the body. After the metals have been dislodged and enter circulation in the bloodstream, the liver attempts to process the metals and remove them. The liver uses bile as a dumping ground for many toxic materials in the body, including heavy metals, which end up being excreted into the bile after they are caused to enter circulation by systemic chelators.

This is where “binders” come in. “Binders,” sometimes referred to as “gut binders,” are substances taken orally that do not enter systemic circulation (or are absorbed very poorly) and simply pass through the intestinal tract and into the feces without being circulated in the bloodstream. In the context of heavy metal detoxification, binders are capable of absorbing, or “mopping up,” various kinds of toxins that are located in the intestinal tract—in this case, heavy metals contained in the bile. Many binders actually absorb and inactivate the bile itself. Some types of binders do not have an effect on bile but instead have highly absorptive properties and can absorb many kinds of toxins and impurities from the intestinal tract (some binders also absorb beneficial nutrients, so careful consideration must be given to the schedules by which binders are administered in relation to meals). Of note here is that binders may also be useful for detoxing

after Herx reactions resulting from the killing of infectious microorganisms.

The use of binders is critical because a large portion of the bile that is secreted by the liver and gallbladder into the digestive tract is absorbed and reused by the body. This recycling is very efficient and allows the body to conserve resources by producing less bile. However, the toxins contained within the bile also get absorbed when bile is absorbed. When undergoing the KPU protocol, a person is already extremely toxic and can barely stay ahead of the rush of toxins that are being released during zinc supplementation, so absorption of toxin-rich bile is unacceptable and can greatly increase misery and delay the process of getting well. Since most of the heavy metals in circulation end up in high concentrations in the bile, gut binders can be very helpful in efficiently binding to the bile and its toxins, and ushering them out of the body. When using binders extensively, it can be helpful to consume foods which are known to help the body make bile, since some bile will be eliminated from the body rather than absorbed.

Binders are not only beneficial because they sequester and usher toxins out of the body. They also facilitate the process of bringing deeper toxins stored throughout body tissues into the gut for elimination. As bile is prevented from being absorbed back into the body by sequestration in gut binders, the body is forced to make new bile. This production of new bile then provides additional capacity for toxin storage, and according to many experts, causes the body to actually stimulate detoxification processes. One well-recognized pioneer in the field of Lyme-related biotoxins describes this process as “removing a plug from a bathtub and allowing the water [toxins] to drain out.” In other words, sequestering and removing bile from the body essentially prompts the body to create more bile, fill it with toxins, and get rid of it, so the use of gut binders has the secondary benefit of accelerating the body’s detoxification processes.

Lifestyle choices can augment or diminish the benefit achieved by using gut binders. A healthy diet, and especially consumption of fiber, will ensure that the bowels continue to move. Fiber is also one kind of gut binder due to its absorbent properties. Drinking lots of fluid is also important to avoid constipation, which is one of the most dangerous enemies of detoxification because it stifles the elimination of toxins from the body.

So, systemic chelators are Step 1 in the detox process. They dislodge heavy metals from their storage sites throughout the body and allow the liver to process them and add them to the bile. Gut binders are Step 2 in the detox process. They grab onto the heavy metals in the bile and sequester them to ensure that they don't get absorbed on their journey through the intestinal tract, but instead, are removed via the feces.

Between systemic chelators and gut binders, gut binders are, by far, the safer substances because they do not come with the risk of dislodging metals from deep within body tissues, which could potentially result in their redistribution throughout the body. A complete discussion of how to avoid redistribution dangers can be found in Andrew Cutler's aforementioned book.

Now let's take a more in-depth look at systemic chelators.

Systemic Chelators

Some would argue that zinc itself is a systemic chelator because it enters the bloodstream and causes heavy metals to be released from their binding sites into circulation. The problem with zinc is that it only dislodges the toxic metals; it does not safely pacify and inactivate them, which is the other characteristic of a systemic chelator. Zinc gets the detoxification process going by knocking the metals loose, but once the metals enter circulation, they are free to be redistributed and bind to other highly sensitive body sites such as the brain, liver, kidneys, and other criti-

cal tissues. Therefore, while zinc is absolutely necessary—the body has no ideal substitute for it—it can also instigate a storm of circulating toxins that wreak havoc on the body. It is precisely this storm that makes the KPU treatment process so uncomfortable.

Enter systemic chelators. In some cases, zinc may do a better job of actually forcing heavy metals out of binding sites, but systemic chelators do a better job of safely inactivating the heavy metals once they are released into the bloodstream, rendering them less toxic to human tissues, hence, making it easier for the liver to remove them without being damaged by them. This makes zinc and systemic chelators a great team: as zinc reclaims binding sites throughout the body and kicks out the toxic heavy metals, systemic chelators are waiting in the wings to bind with the toxic heavy metals and more easily usher them out of the body.

Once heavy metals are safely bound to systemic chelators, the metals are much less dangerous. Some systemic chelators are lipophilic and are useful for detoxing the brain, and some are hydrophilic and are useful for detoxing other parts of the body. Each type of systemic chelator has a different biochemical profile and different affinities for the various heavy metals. Some are better for removing mercury, while others are better for removing lead. The complexity of this scenario mandates that anyone using the KPU protocol should not only be under the care of a well-trained physician, but should also educate themselves on this topic and have first-hand knowledge of the process.

Even the most powerful and useful systemic chelators are only partially effective. Systemic chelators are only capable of creating mild to moderately strong bonds with toxic heavy metals, and while using systemic chelators, a significant quantity of heavy metals is still undesirably redistributed throughout the body. This is why heavy metal detoxification is so difficult and controversial. At the heart of the controversy is the question of which chelators create the strongest bonds to heavy metals, what doses of these chelators should be used, and how often the doses should be ad-

ministered. You'll get different answers to these questions from nearly every expert with whom you consult. The goal of removing as many toxic heavy metals as possible while doing the least amount of damage is the delicate balance that people who undertake chelation must face.

As we've seen, systemic chelators can work in harmony with gut binders. Systemic chelators travel throughout the body and mobilize toxic heavy metals (or bind to toxic heavy metals which are already in circulation). The liver then processes these heavy metals for elimination in the bile. Gut binders are then waiting in the gut to absorb and inactivate bile and/or toxins.

Optimal heavy metal detoxification programs should use both systemic chelators and gut binders. In addition to systemic chelators and gut binders, there are many other supplements, protocols and treatments that aid the body in detoxifying heavy metals. Some of these substances should be used continuously throughout the entire KPU protocol, while others can be used intermittently. The help of a trained physician is essential in developing a good detox protocol.

NOTE: Heavy metals share many common attributes with the biotoxins produced by the infectious organisms involved in Lyme disease and co-infections. Both are fat-soluble, tend to accumulate in the brain with devastating neurological consequences, are difficult to remove from the body, and can cause debilitating symptoms. Both can also be addressed by similar substances and techniques. Therefore, the detoxification strategies (and even some of the substances and supplements) found in this chapter will also be useful for detoxification purposes during anti-infective treatment and Herxheimer reactions.

Examples of Gut Binders

Now that we've defined gut binders and systemic chelators, let's take a look at some examples of specific supplements. Many kinds of gut binders exist. A complete list of these substances is beyond the scope of this

book, but here, I will list a few gut binders that have been used by the Lyme disease community and those who are pursuing heavy metal detox. If you want to use any of these, I suggest researching the substance first, as each one has different pros and cons, and different side effects.

1. Apple pectin, and other kinds of pectins.
2. Activated charcoal
3. Fiber supplements
4. Cholestyramine
5. Clays

Examples of Systemic Chelation Agents

IMPORTANT NOTE: All of these agents are potentially dangerous and have the ability to cause severe and permanent redistribution of heavy metals into sensitive body tissues. These substances should only be used under the close supervision of a licensed physician. Furthermore, the agent chosen isn't the only important factor; dosage and dosage schedules can also render these agents safe or dangerous.

1. Alpha Lipoic Acid (ALA)
2. 2,3-Dimercapto-1-propanesulfonic acid (DMPS)
3. Dimercaptosuccinic acid (DMSA)
4. Ethylenediaminetetraacetic acid (EDTA)
5. Some forms of silica
6. Some forms of humic acid
7. Chlorella
8. Cilantro
9. Some forms of zeolite

Different individuals will have differing responses to these substances. Also, different kinds of heavy metals will be more or less responsive to each substance.

Be especially careful with item #'s 4-9, as these are less proven and less safe than item #'s 1-3. Still, even item #'s 1-3 can cause serious damage if used inappropriately. Remember, chelators are typically not what cause damage; it is instead their improper use that is the problem. Any chelator used improperly will do harm instead of help.

Other Supportive Supplements and Treatments

In addition to gut binders and systemic chelators, there are many other supportive therapies which can be used during KPU treatment as well as during detox of other toxins, including Lyme biotoxins. Here we will take a look at a few of them.

- Homeopathic drainage remedies. These substances can be very helpful during detox, as they catalyze the body's own detox processes. There are many of them, but my favorites are Lymphomyosot by Heel, ITIRES by Pekana, apo-HEPAT by Pekana, RENELIX by Pekana, Ubichinon compositum by Heel, Hepar compositum by Heel, and Solidago compositum by Heel.
- Amino acids. Amino acids are used heavily by the body during detoxification. See Chapter 4 for information on how to increase your amino acid intake. Consuming animal protein as well as whey protein isolate is a great place to start.
- Increased fat consumption. Various types of dietary fat help the body remove toxins and rebuild damaged tissue. See Chapter 4 for more information.
- Sauna therapy. Many people benefit from sauna therapy during detoxification, as it can help remove toxins via the skin.

- Herbs with detoxification properties. Many herbs are available which help the body detoxify.
- Vitamins and minerals. The body uses up vitamins and minerals faster during detox, so supplementing with these is important.
- Liver support. The liver is heavily taxed during detox, so liver support is crucial (See Chapter 15).
- Drinking lots of water. Water is essential to keep everything moving and ensure that toxins and detox supplements are moving out of the body.

Two Phases of Symptomology During KPU Treatment

Many people have noticed two distinct phases of symptomology during use of the KPU Protocol. It is helpful to know about these phases before you begin the protocol, so you can prepare for them and develop strategies to deal with them.

Symptomology Phase #1: Heavy Metal Release

This phase has already been discussed throughout this chapter. Typically, a person will experience symptoms of heavy metal circulation shortly after beginning KPU treatment. During this phase, zinc supplementation can be a Catch-22. As the body begins to receive much-needed zinc to replace the toxic heavy metals which occupy the zinc binding sites throughout the body, you may find that you feel much better.

The Catch-22 happens because the more zinc you take, the more heavy metals get released. So, while your body may be craving additional

zinc, taking more zinc may actually end up making you feel more toxic from heavy metal circulation. For this reason, it is advisable to start slow with zinc supplementation and work up the dose over time.

Symptomology Phase #2: Immunological Activation

After you have been using the KPU protocol for some time (this time frame varies greatly between one month and six months, or even longer), the heavy metal dumping will slow down, and finally end. This is a victory, and it feels very good to be able to give your body the zinc it needs without making yourself miserable with the symptoms of heavy metal circulation. It is quite a milestone to get to this point.

Somewhere around this time, or possibly sooner, your body will begin to use the zinc that it has never had enough of to turn on body functions which were not previously occurring normally. Because zinc is involved in literally dozens of critical bodily processes, you may experience various changes in how your body feels.

The most notable area of change is usually new immunological reactions. Some people describe this phase of the recovery process as “getting cold after cold,” or “flu after flu.” Others may experience it as an increase in allergies, nasal congestion, or even inflammation. Zinc is a critical component of the immune system (you may be aware that many zinc supplements are actually marketed as aids for the common cold), so as your zinc levels are normalized and the immune system turns on, you may feel the effect of this increase in immune function. Some researchers believe that chronically ill people have a backlog of viral and bacterial infections that the immune system hasn’t been able to deal with, and that zinc supplementation may finally give the body the tools it needs to go after these infections. This could explain the experience of having “cold after cold,” or “virus after virus.”

In my personal experience with the KPU protocol, I did indeed travel through this phase. While I did have the perception of getting numerous minor head colds, fortunately, none of them were quite as severe or annoying as regular head colds. I did, however, experience one challenge during this phase. At one point, I suffered from nasal congestion so severe that I wound up with a raging sinus infection. Up until this point in my life, I had never had a sinus infection—not even one. This particular sinus infection was so severe that I almost went to the emergency room. My entire head was in unrelenting agony, and despite trying antibiotics, nasal rinses, a Neti pot, and a number of other interventions, it just wouldn't go away. Two treatments finally killed the sinus infection: First, I used oral oregano oil supplementation; and second, I laid on my bed with my head dangling backwards off the side of the bed and inserted salt water into my nostrils, allowing the salt water to drain deep into my sinus cavities as my head was upside down (I believe the Neti pot was ineffective because the rinse water was not able to penetrate deep enough into my sinuses; gravity was the only force which allowed the salt water to get where it needed to go).

Eventually, zinc supplementation no longer caused me to experience heavy metal detoxification symptoms or immunological activation symptoms. When you reach this point in the process (which can happen as soon as three months into the KPU protocol or as late as a year into it), most practitioners recommend that you continue to utilize a maintenance dose of the KPU nutrients for life, since the underlying causes of KPU are believed to be life-long problems, and the condition may return if the supplements are not continued.

Which Binders, Chelators, and Detox Supplements Should Be Used?

Although beyond the scope of this book, you should develop the skills necessary to determine which detoxifying agents are most needed by your body. The agents that are most helpful will change over time, some-

times as rapidly as every few days. You will find that substance “A” is very helpful to you one day, and the next day, does nothing for you. Different people have different ways of knowing which detox supplements are most helpful at any given time. Many people in the Lyme disease community rely on “energetic testing” to determine which therapies are most helpful at any given time. Energetic testing is also sometimes referred to as “muscle testing,” “Autonomic Response Testing,” and other names. Basically, energetic testing is a system for learning what substance your body needs by placing that substance (for example, a bottle of homeopathic medicine) within the energy field of your body (sometimes, the substance is held close to the chest, near the solar plexus) and then asking your body if it needs that substance. Asking the body can be accomplished by holding out an arm and having a practitioner push down on your arm (the stronger the arm, the more your body needs the substance), for example. Some people can simply feel that their body either needs or does not need the substance when it is held close or near to the body. Various energetic testing devices and mechanisms are also available for helping a patient or practitioner determine whether a given substance is something that the body currently needs.

While energetic testing may seem like quackery, it is actually employed by some of the most well-respected and experienced alternative healthcare practitioners. One of my mentors, a woman who is completely recovered from Lyme disease and co-infections, has said that energetic testing was the only thing that facilitated a complete recovery for her. She feels that people who do not utilize energetic testing may get well, but it will likely take them much longer because they are wasting so much time experimenting and using trial and error to find out what their bodies need. I have to say, after years as a skeptic, I am now a firm believer in energetic testing, because I have seen it work so consistently and reliably in my own healing journey.

The KPU Nutrients: Should They Be Taken Together or Separately?

Note: This question is in reference to the minerals, vitamins, and nutrients used in the KPU Protocol, such as zinc, vitamin B6, manganese, etc. It is not in reference to the detoxification agents, such as apple pectin, charcoal, gut binders, or systemic chelators.

While various products are available which combine all of the recommended KPU nutrients, I personally believe that supplementing each of the individual nutrients separately is the most prudent course of action. Individual supplementation provides many benefits, including the ability for you to identify adverse reactions to each ingredient, the ability to customize the dosage of each individual ingredient, and the ability to experiment with different product brands for each ingredient. As you will learn, dosage levels for the various ingredients can be controversial and vary depending on individual tolerance, so using separate products for each individual ingredient can provide you with the necessary flexibility to adjust your protocol as needed. Also, please note that while some of the KPU nutrients are relatively safe and non-toxic (such as biotin), other nutrients included in the KPU program (such as vitamin B6) have known toxicity at higher dosages. Please conduct your own, independent research on each ingredient prior to use, and please use these nutrients only under the careful supervision of a licensed health care practitioner.

Copper Supplementation During the KPU Protocol

Zinc and copper compete for absorption in the intestinal tract. Since supplementation with zinc can lead to copper deficiency, copper supplementation may be required at some point during KPU treatment. Keep in mind, however, that copper toxicity is also very common in people with chronic disease. Be careful when supplementing with copper. The right

amount can prevent copper deficiency, but too much can create other problems.

In the worst cases, copper deficiency can be irreversible and cause permanent neurological damage. It is for these reasons that caution and common sense should be employed during use of the KPU protocol. It should not be used unless it is supervised by a licensed health care practitioner. Zinc dosages should be carefully monitored, and zinc should not be taken in large, unsafe doses, as these can lead to copper deficiency.

Side Effects of Arachidonic Acid

Arachidonic acid is a type of Omega-6 fatty acid and one of the recommended supplements in the KPU Protocol. Users of the protocol should be aware that some people cannot tolerate Arachidonic acid, because it has, in some studies, been associated with heart attacks, thrombotic stroke, arrhythmia, arthritis, osteoporosis, inflammation, mood disorders, obesity, and cancer. It can often be detrimental to people who have chronic inflammatory conditions. For me personally, Arachidonic acid was not beneficial and did indeed increase inflammation. At first, I felt that this may have been a healing reaction or detox reaction. However, after continued use, it became obvious to me that this substance was negatively impacting my health. This is something to consider before using Arachidonic acid as a part of the KPU protocol. This type of problem is another reason why supplementing with the KPU nutrients individually, instead of within a supplement that contains all of them, may be a more cautious approach.

Do All Lyme Sufferers Have KPU Issues?

If you begin the KPU protocol and do not notice any detox reactions or symptom improvement from zinc supplementation or from supple-

mentation with the other KPU nutrients, it may be possible that you do not have KPU issues and that you do not need to use this treatment.

Various tests are available to determine whether a person requires KPU treatment. While I'm not convinced of the accuracy of these tests, they may be helpful in deciding whether or not to pursue KPU treatment.

Conclusion

This chapter has certainly not provided exhaustive, extensive guidelines for using the KPU protocol. Instead, the chapter was intended to provide you with information on some of the nuances of the protocol as well as some of the misunderstood aspects of heavy metal detox. You can find more specific instructions for using the protocol in many locations, including other Lyme-related books, and by searching Google for *KPU protocol for Lyme disease*.

I also recommend reading Andrew Cutler's book, *Amalgam Illness*, to gain a foundation of understanding for heavy metal detox.