

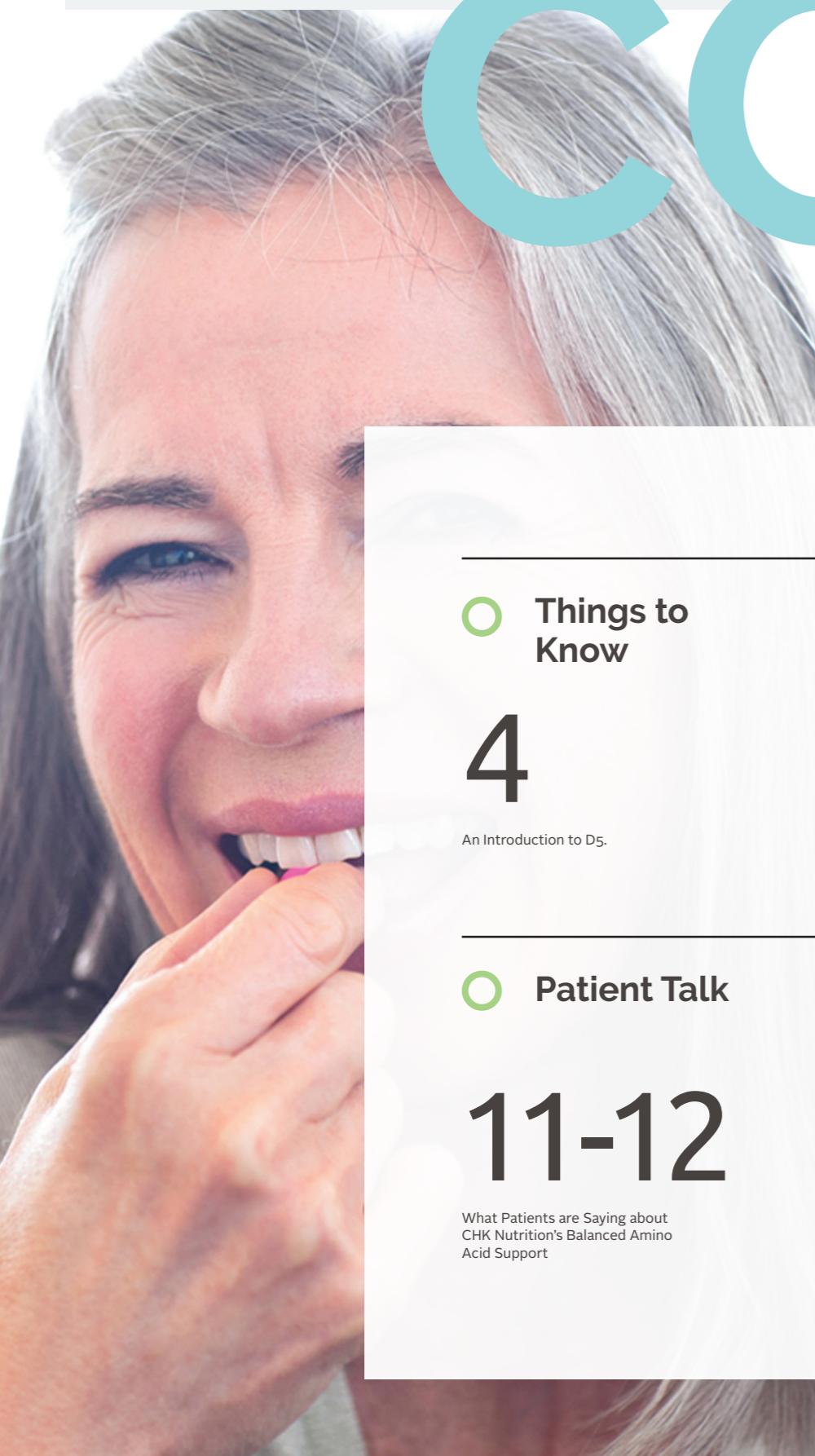
D5 Dosing Guide

The Basics for a Great Start



Do you have a question? Need help? Contact us at: **1-877-538-8388**

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Brain, Gut and Overall Health Done Well

Welcome!

For over 20 years, providers in the United States (and around the world) have used our comprehensively researched formulations to support their patients' brain, gut and overall health.

Our company was founded by medical doctors focused on researching and offering their patients premium nutrients based on the most current scientific and medical knowledge. This occurred at a time when nutritional supplement research was still in its infancy. But the problem was greater than just research; even when research found promise for a nutrient, many times it was difficult to find products that contained what they promised and weren't at risk of being contaminated.



From this desire, our then lead medical doctor reached out to likeminded doctors and scientists. It took four years of research to design our current formulations. Since 1999, research has continued into various applications using these formulations.

After several partnerships, CHK Nutrition was established in 2005. Our letters, CHK stand for Clinical Health and Knowledge, reflecting our ongoing commitment to quality, scientific research and the promotion of accurate information. We are excited you have decided to learn about CHK Nutrition. CHK Nutrition offers two core amino acid products, NeuroReplete and D5. This dosing guide is designed specifically to support our scientifically

researched product, D5. You will find information on choosing between NeuroReplete and D5 on pages 29 – 32.

We really appreciate your time. We look forward to demonstrating our commitment to quality, consistency and attention to detail. Throughout this guide, we feature discussions on the science and some of the health benefits behind D5. We hope you will find this information beneficial.

Sincerely,

Amy Gunthert, CEO CHK Nutrition



CHK Nutrition
3930 East Calvary Rd
Duluth, MN 55803

*DISCLAIMER: These statements have not been evaluated by the Food and Drug Administration (FDA).
CHK Nutrition's products are not intended to treat, diagnose, cure mitigate or prevent any diseases.

Note: The information presented in this guide is not treatment advice. Healthcare professionals should use their best judgment when caring for their patients.

Things to Know Before You Turn the Page

CHK Nutrition offers two core amino acid products, NeuroReplete and D5. We recognize this may cause confusion for some individuals. For each patient, providers choose from D5 or NeuroReplete as their source of core support.

This dosing guide is designed specifically to support, D5. You will find more information on choosing between NeuroReplete and D5 on pages 29 – 32. D5 and NeuroReplete contain the same ingredients, except D5 also contains mucuna. Typically, providers that recommend NeuroReplete use an analytical measurement to make dosing recommendations and find the process easier when starting without mucuna.

The dosing levels discussed are meant to help promote and support normal health and wellness.

Dosing with D5 does not have to involve various levels. The dosing recommended on page 8 may provide acceptable support. We offer the dosing recommendations on pages 9 & 10 for those looking for advanced support or for those with a patient that wants to address specific needs in any area on pages 5 – 6 or 13 – 15.

Lastly, CHK Nutrition's products are not intended to diagnose, treat, cure, mitigate or prevent any diseases. We do not make any comment on how to manage an individual's nutritional needs beyond general health and wellness. If you feel that as part of an overall health plan our nutrients can be a support piece to help with a patient's nutritional needs, this may be a reasonable consideration, but this decision remains with the provider.

D5 Promotes Normal Health and Wellness

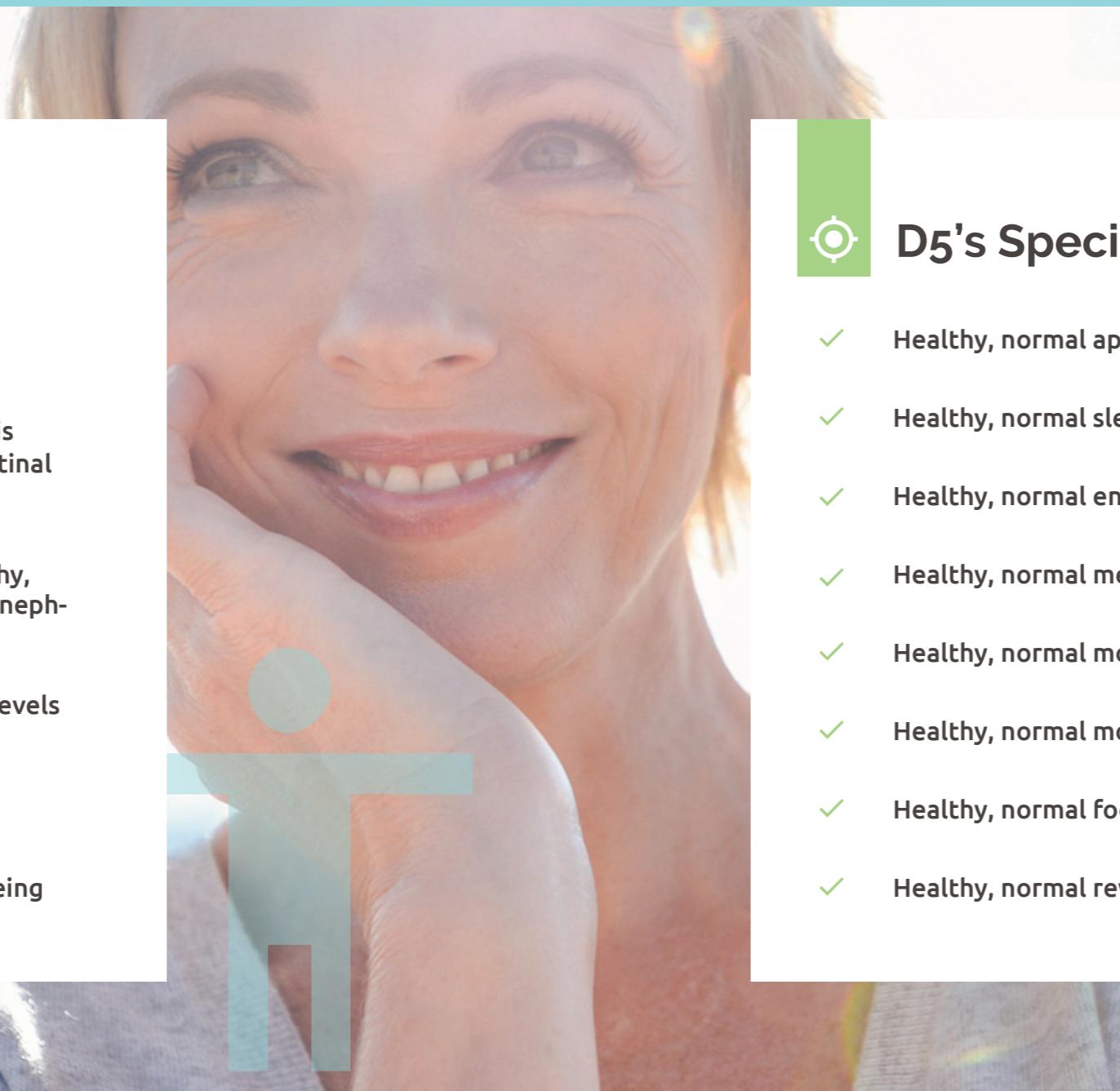
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D5's Broad Support

- ✓ Brain health and wellness
- ✓ The enteric nervous system, which is associated with normal gastrointestinal health (Gut health)
- ✓ Balanced nutrients to support healthy, normal serotonin, dopamine, norepinephrine and epinephrine production
- ✓ Healthy, normal neurotransmitter levels
- ✓ Healthy, normal post-synaptic neuron firing
- ✓ A healthy, normal feeling of well-being



D5's Specific Support

- ✓ Healthy, normal appetite
- ✓ Healthy, normal sleep
- ✓ Healthy, normal energy
- ✓ Healthy, normal memory and learning
- ✓ Healthy, normal movement and balance
- ✓ Healthy, normal motivation
- ✓ Healthy, normal focus
- ✓ Healthy, normal reward drive





Common Reasons Patients Request D5's Balanced Nutrient Protocols:

“

"My life is busy and I feel like I am stuck in a fog of to do lists. I don't know what is worse, the exhaustion or periodically forgetting things. I would like to find a supplement that may help support focus."

“

"Most nights I sleep reasonably well, but occasionally I end up with a couple nights of bad sleep, which leaves me feeling rundown for days. I would like to find a supplement that may help support sleep patterns."

“

"I am not normally an angry person, but lately I have a shorter fuse. I feel frustrated and am struggling with patience. It doesn't happen all the time, but I don't want it to happen at all. I would like to find a supplement that may help support calmness."

“

"I feel like there is a continual weight on my shoulders. My responsibilities leave me stressed and feeling like I am one step away from yelling, "the sky is falling." I know that I don't have to focus on everything. Sometimes I can prioritize and keep things in perspective, but other times it can be taxing. I would like to find a supplement that may help maintain a balanced perspective."

“

"I can usually convince myself to eat well for three or four days, but by day four or five I find myself caving to bad choices. It feels like my willpower is taxed and I would really like to find a supplement that may help support a balanced appetite".

First - Let's Keep it Simple

The dosing protocol below is recommended for any provider looking for brain, gut or overall health support that does not want to dose with various levels, as well as those who want to try out our products but are not ready to focus on dosing levels.

Note: The information presented in this guide is not treatment advice. Healthcare professionals should use their best judgment when caring for their patients.

Excellent General Health Dosing of D5 No Fuss, Just Great Support

AM	Noon	Four PM	Bedtime
4 D5	2 CysReplete	4 D5 + 2 CysReplete	2 CysReplete

This protocol offers a good overall support for your brain!

For more information on why we recommend CysReplete, please see pages 27 – 28.

For information on managing side effects associated with D5 or CysReplete, please see pages 35 – 40 or review our separate booklet, Managing Side Effects.

How to Use the D5 Protocol

Balanced Nutrient Protocols

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Recommended Dosing with D5

Our original research focused on creating a formulation that could support brain health in a way that was reproducible. From this expectation, it became clear that two people with very similar concerns could have very different nutrient needs. There are several reasons this occurs, including personal diet, stress, exposure to chemicals, medications, the supplements they use, and activity level. Our research sought to find dosing that could easily support a wide variety of patients. We have found the best way to do this was to create a dosing gradient based on levels. By level 3, many patients report being satisfied with our nutrients. Though, some benefit from additional mucuna (discussed as bonus support).

Support Level 1:

Support Level 2:

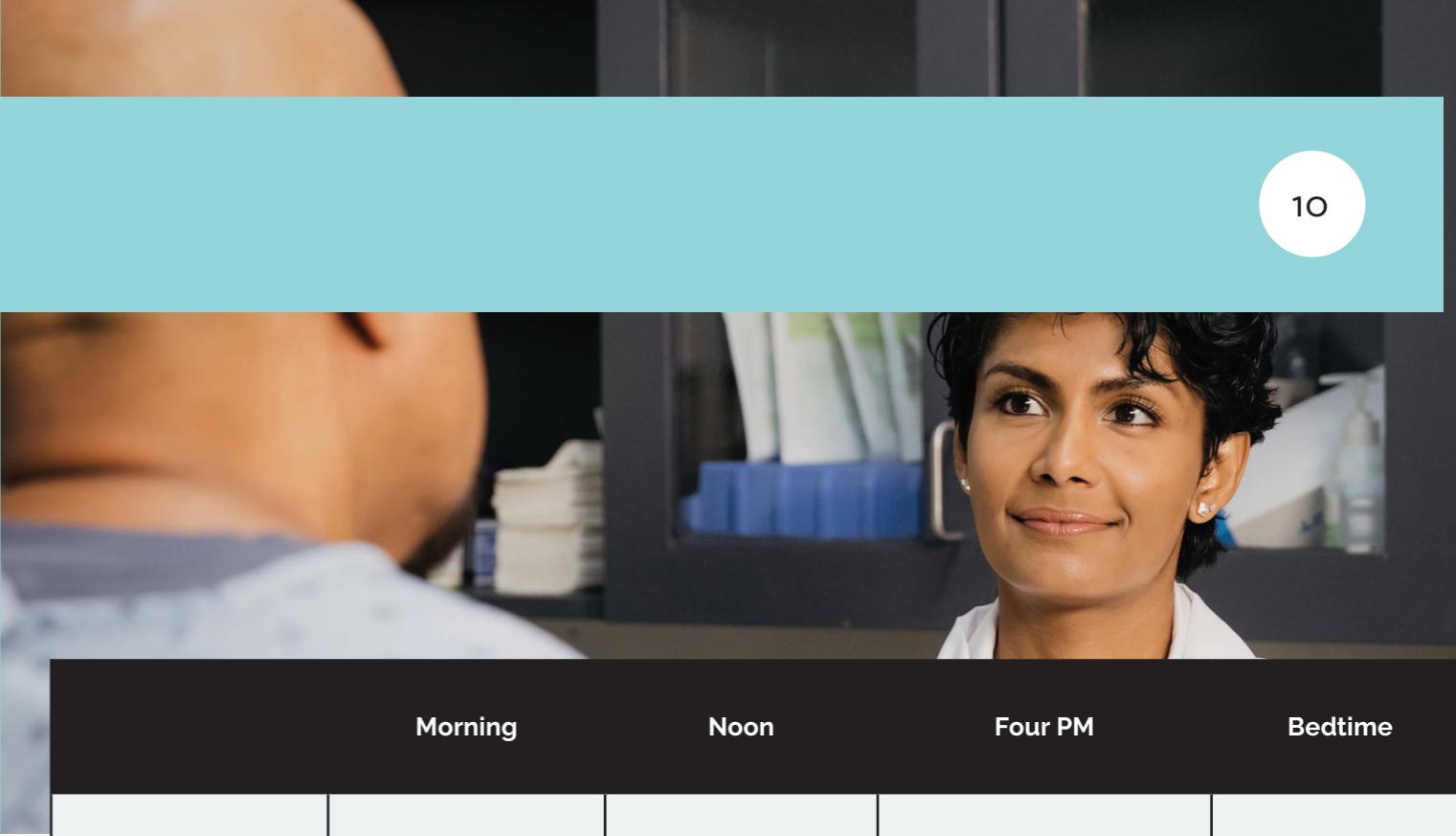
Support Level 3:

A great place for many healthy individuals looking for brain, gut and overall support. Also, a great starting place for those healthy individuals looking to support any areas on pages 5 – 6 & 13 – 15.

Support Level 2 is intended for healthy normal patients with concerns in any areas listed on pages 5 – 6 & 13 – 15 that continue to experience occasional issues or feel the need for additional support after at least one week on Support Level 1.

Support Level 3 is intended for healthy normal patients with concerns in any areas listed on pages 5 – 6 & 13 – 15 that continue to experience occasional issues or feel the need for additional support after at least one week on Support Level 2.

To Start – We recommend always using CysReplete (see pages 27 – 28 for the discussion)



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	Morning	Noon	Four PM	Bedtime
Support level 1	4 DS		4 DS	
Support level 2	4 DS	4 RepleteExtra	4 DS	
Support level 3	4 DS	4 RepleteExtra	4 DS	4 Replete Extra
Bonus support level	Level Dose + Mucuna	2 CysReplete	Level Dose + Mucuna 2 CysReplete	2 CysReplete

Bonus Support Level:

Useful if the patient seems to be between levels - i.e. level 1 may feel okay but there is a desire for more support and level 2 is too much, if level 2 feels okay but there is a desire for more support and level 3 feels too much, or if level 3 does not feel like enough support.

Bonus level dosing involves adding Mucuna 40% pills, which may improve the patient's satisfaction with their nutritional support. For those feeling caught between doses, adding one to two pills may be beneficial. Start by adding one Mucuna pill per day. After one week on one Mucuna pill, it is possible to increase to two pills if there is a desire for more support.

For information on managing side effects associated with D5 or CysReplete, please see pages 35 – 40 or our booklet, Managing Side Effects.

For more information on why we recommend CysReplete, please see pages 27 – 28.

What Patients are Saying

About CHK Nutrition's Balanced Amino Acid Approach

“

“I can move more freely and the fog has lifted. I am taking yoga, lifting weights and even taking SPIN classes. Even my close family and friends have noticed how much better I sound and act.”

— M.J., Texas

“

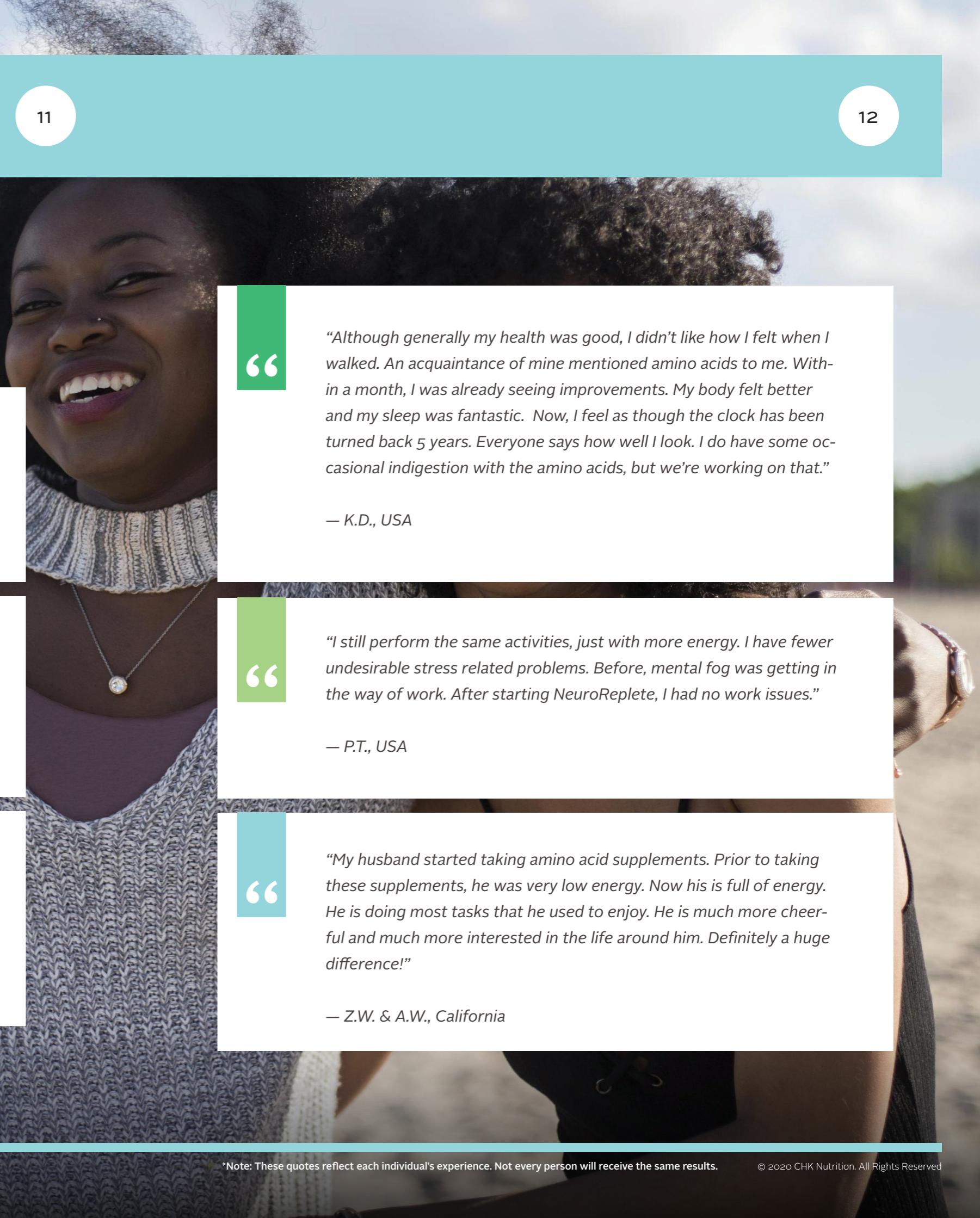
“I have more control over my eating and struggle less with night-time binges. As I feel better, I am signing up for more running races than I have in the past and taking more initiative to live a better life.”

— F.B., Nebraska

“

“I started taking amino acid supplement because I was having the feeling of being cloudy in my head. I am doing good if I am regular with my pills. There has been a very big difference in my overall mental state and well being.”

— S.R., Wisconsin



“

“Although generally my health was good, I didn’t like how I felt when I walked. An acquaintance of mine mentioned amino acids to me. Within a month, I was already seeing improvements. My body felt better and my sleep was fantastic. Now, I feel as though the clock has been turned back 5 years. Everyone says how well I look. I do have some occasional indigestion with the amino acids, but we’re working on that.”

— K.D., USA

“

“I still perform the same activities, just with more energy. I have fewer undesirable stress related problems. Before, mental fog was getting in the way of work. After starting NeuroReplete, I had no work issues.”

— P.T., USA

“

“My husband started taking amino acid supplements. Prior to taking these supplements, he was very low energy. Now his is full of energy. He is doing most tasks that he used to enjoy. He is much more cheerful and much more interested in the life around him. Definitely a huge difference!”

— Z.W. & A.W., California

CHK Nutrition and Your Patients' Health

Serotonin and the catecholamines regulate several key pathways in the body. Our formulations have been studied using many methods, including biomarkers to examine the correlation between amino acids and many areas of health and wellness.

D5 supports the Central Nervous System (CNS) via vitamins and co-factors, which cross the blood brain barrier (BBB) and offer balanced support of serotonin and the catecholamines (dopamine, norepinephrine and epinephrine).

Providers choose to use CHK Nutrition's balanced amino acid support for a variety of reasons. Here are a few:



Brain Support

- ✓ Healthy, normal mood support
- ✓ Energy support
- ✓ Supports normal, healthy memory
- ✓ Helps promote healthy, normal focus
- ✓ Supports those experiencing brain fog and periodic episodes of forgetfulness with no known medical causes.



Glutathione Support

- ✓ Healthy, normal balanced neurotransmitter levels to support cysteine
- ✓ Supports the overall body when stress places additional strains that may tax toxin maintenance
- ✓ With the addition of CysReplete, the D5 protocol offers glutathione support, which promotes healthy, normal toxin maintenance



Brain/Gut Connection

- ✓ Serotonin support. 90% of serotonin occurs in the gut, which has an impact on gut and brain health
- ✓ Supports healthy, normal communication between the enteric and central nervous systems



Mood Support

- ✓ Balanced support to maintain a healthy, normal mood
- ✓ Balanced serotonin support for those with occasional low moods
- ✓ Balanced serotonin support to support those with occasional anxiousness
- ✓ Replenishing support for the whole body because stressful days use more of the core building blocks



Healthy, Normal Aging

- ✓ Balanced nutrients to support a long-term view of brain health by better supporting today's nutrient needs
- ✓ Supports healthy, normal learning and memory
- ✓ Glutathione support for healthy, normal toxin maintenance
- ✓ Supports healthy, normal neuron structures and communication



Movement

- ✓ Supports healthy, normal neuron cell structures and communication
- ✓ Supports healthy, normal fluid movements
- ✓ Supports balanced serotonin and dopamine for healthy, normal sensation



Energy and the Ability to Recharge

- ✓ Formulated to support the whole body by providing nutrients needed to replenish and be stress-ready
- ✓ Supports improved brain fog
- ✓ Supports healthy, normal energy
- ✓ Supports healthy, normal attention and alertness



Motivation and Reward

- ✓ Supports healthy, normal dopamine receptor function, which is associated with pleasure and reward
- ✓ Supports healthy, normal drive for rewards
- ✓ Supports healthy, normal motivation



Appetite Support

- ✓ Supports a healthy, normal appetite
- ✓ Supports a feeling of satiation/fullness
- ✓ Supports healthy, normal craving control
- ✓ Supports healthy, normal carbohydrate seeking
- ✓ Can be used as part of a weight program: whether the patient wants to maintain their current weight, wants to lose weight or feels like they have occasional challenges with their appetite and will-power.



Sleep Support

- ✓ Melatonin support
- ✓ Supports healthy, normal sleep quality
- ✓ Supports healthy, normal sleep to promote the mood/sleep connection

Help Your Patients Get the Most Out of Their Amino Acid Support

- After starting or changing a dose, see your patients one week later
 - If your patients wait too long between visits, they may be dissatisfied with their amino acid support and lose interest.
- Do not change a dose more than once a week, unless there is a side effect that needs to be managed
 - It can take up to a week before the body has fully integrated the nutrients
- Instruct all patients to take their first dose of CysReplete after 12 (noon), as there is an increased likelihood of GI upset when taken in the morning. (see pages 35 – 36)
- Encourage your patients to use a pill tracking app, to use alarm reminders or offer your patients a dosing sheet to encourage consistency
 - Consistent dosing provides the ability to achieve the most from amino acid

support. We have created a simple dosing sheet that can be requested direct from CHK Nutrition or found at: <https://chknutrition.com/wp-content/uploads/2017/08/CHK-Dosing-Protocol.pdf>



DOSING SHEET – check or write the desired dosing

NeuroReplete Protocol	Recommended Starting Dose for NeuroReplete				
	CHECK HERE	MORNING	NOON	LATE AFTERNOON	EVENING
		4 NeuroReplete	4 NeuroReplete*	2 CysReplete*	2 CysReplete*

D5 Protocol	Recommended Starting Dose for D5				
	CHECK HERE	MORNING	NOON	LATE AFTERNOON	EVENING
		4 D5	4 D5	2 CysReplete*	2 CysReplete*

Alternate Protocol	Write in the number of pills or grams of powder to take at each time			
	MORNING	NOON	LATE AFTERNOON	EVENING
NeuroReplete				
RepleteExtra				
B6				
TyrosineReplete				
Mucuna 40%				
5-HTP 98% Pure				
CysReplete*	2 Pills	2 Pills	2 Pills	2 Pills

*CysReplete (2 pills, 3 times a day) is recommended when taking NeuroReplete or D5 to avoid sulfur amino acid depletion.

Any questions regarding products or dosing should be directed to your healthcare provider.



**Premium happens because
we are committed to every
batch, every time**

Attention to Detail and Quality

At CHK Nutrition, we are pleased so many doctors have confidence in our premium products. We work continuously to maintain this trust by addressing all aspects of manufacturing, handling and the delivery of our products.

We understand the importance of ensuring the integrity of our ingredients.

We insist on utilizing the best specifications.

- ✓ We confirm that our products are made to our strict specifications
- ✓ We take extra measures to ensure that our products are well managed
- ✓ We safeguard as much as possible to ensure a continuous and reliable supply

We cannot directly speak about why other brands label their supplements as premium, but we can share some details about why CHK Nutrition's line of supplements are truly premium.

For us, premium supplements involve:

- ✓ Scientific foundation and research
- ✓ Continued research for all ingredients and ingredient combinations
- ✓ Products that contain what they promise
- ✓ Products free of unwanted byproducts or contaminants
- ✓ Suppliers that maintain safety, consistency and quality
- ✓ Products manufactured in the United States
- ✓ A quality agreement of expectations and responsibilities with the manufacturing plant
- ✓ The manufacturing company's industry reputation, certifications and the desire to go beyond the expectations that these valued certifications require
- ✓ Attention to detail within the manufacturing process
- ✓ Continual oversight of the products
- ✓ Independent testing of every batch, every time



Scientific Foundation and Research

Our company evolved from research started in 1995 by medical doctors. Our expertise is built on over twenty-five years of nutritional supplement research.

The Best Ingredients

We only use ingredients that are Generally Recognized as Safe (GRAS) and scientifically researched. This qualification is supported by scientific and medical literature. We are particularly interested in how our natural ingredients are extracted. Not all extractions are equal, which means that they do not always result in the same active ingredients. We expect our products to support optimal health, therefore we insist on the highest level of quality, rigorous practices and testing to ensure we meet these goals.

Our research has been a critical part of providing the best nutrient support possible. Further discussion of the scientific and clinical research can be found on pages 22 - 28.

Verification by an Independent Testing Lab

Before any CHK Nutrition product is shipped to our customers, each completed lot is evaluated by an independent testing facility to verify that product specifications fall within our guidelines. No products will be approved for sale unless they pass this final inspection that we independently initiate.

What Manufactured in the United States Means for You

Manufacturing companies in the United States must follow Good Manufacturing Practices (GMPs). These practices are intended to prevent the addition of incorrect ingredients, the use of incorrect amounts of the desired ingredient, prevention of contamination, and improper handling, packaging, labeling or storage of a product.

What Our Manufacturing Expectations Mean for You

We have a long-standing relationship with our contract manufacturing plant. Over the years, they have made it their goal to exceed our expectations and the requirements of their NSF and GMP certifications.

Here is what you can expect from the relationship that we have built with our contract manufacturer:

- We maintain a quality agreement with our manufacturing company that outlines our expectations, as well as identifies each company's responsibilities
- We have access to the records pertaining to each of our products. With each batch, we can confirm checks and rechecks at each step of the manufacturing process, which allows us to confirm continual oversight and attention to detail.
- With the help of a compliance auditor, we conducted an independent, on-site audit of our manufacturing facility in late fall 2018. Our next audit is planned for early spring 2020. This audit is in addition to the yearly independent third-party audit conducted by NSF and multiple other organizations that confirm compliance with certifications. Our site audit is beneficial because we can personally confirm our expectations are being properly managed.

Here is what our manufacturing plant provides:

- Product consistency and conformity to expectations. They use GMP manufacturing practices, which impacts all areas of quality and safety.
- All raw material suppliers are vetted based on their record of accuracy, lack of contamination, safety and quality
- All raw materials are bought at our specifications, they will not contain unwanted contaminants and will meet our purity and extraction requirements
- All raw materials are tested to ensure exact product identification – to ensure that they provide what they promise and do not contain any unwanted materials

Manufacturing cont'd

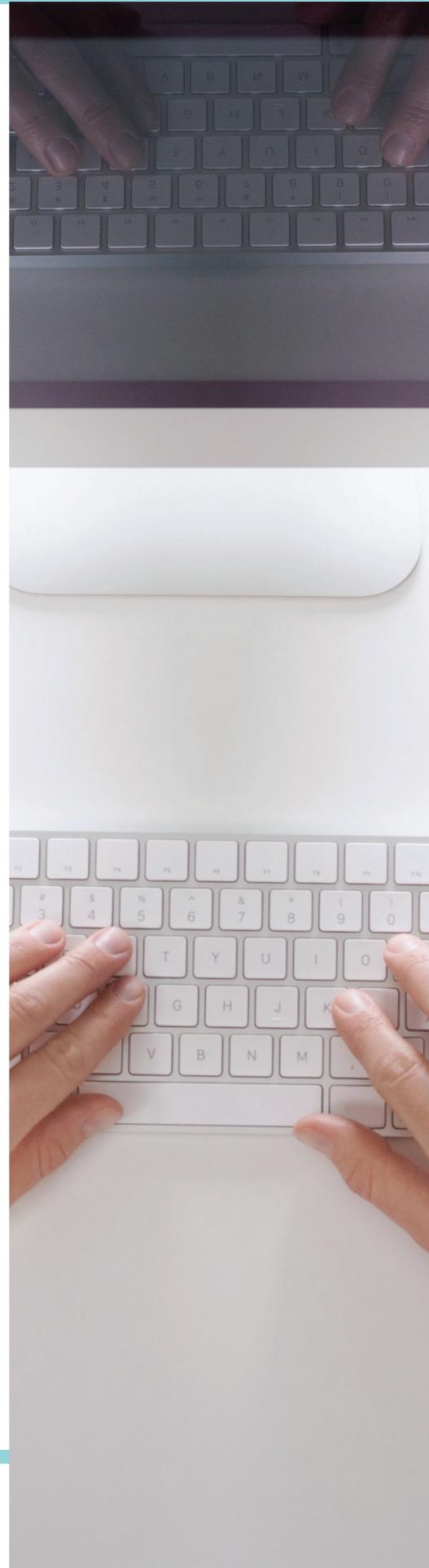
- All raw materials are inspected and quarantined to ensure quality prior to being released for production
- Random samples of our products are pulled throughout the production process and tested in the lab.
- All products are QA inspected before they can leave the manufacturing facility

Final Observations

We cannot address what steps other brands have incorporated into their manufacturing processes to ensure product quality. We know that our dedication to quality, consistency and reproducibility is engrained as part of our character, it goes back to our early days of research.

Early in our research project, it became clear that not all products are produced with the same level of quality. Patients experienced very different health supports when nutritional brands were changed. This was frustrating for the doctors conducting the research, as well as the patients. Through lab analysis and health support outcomes, it became clear that quality, consistency and purity mattered when it came to obtaining consistent and reliable health support.

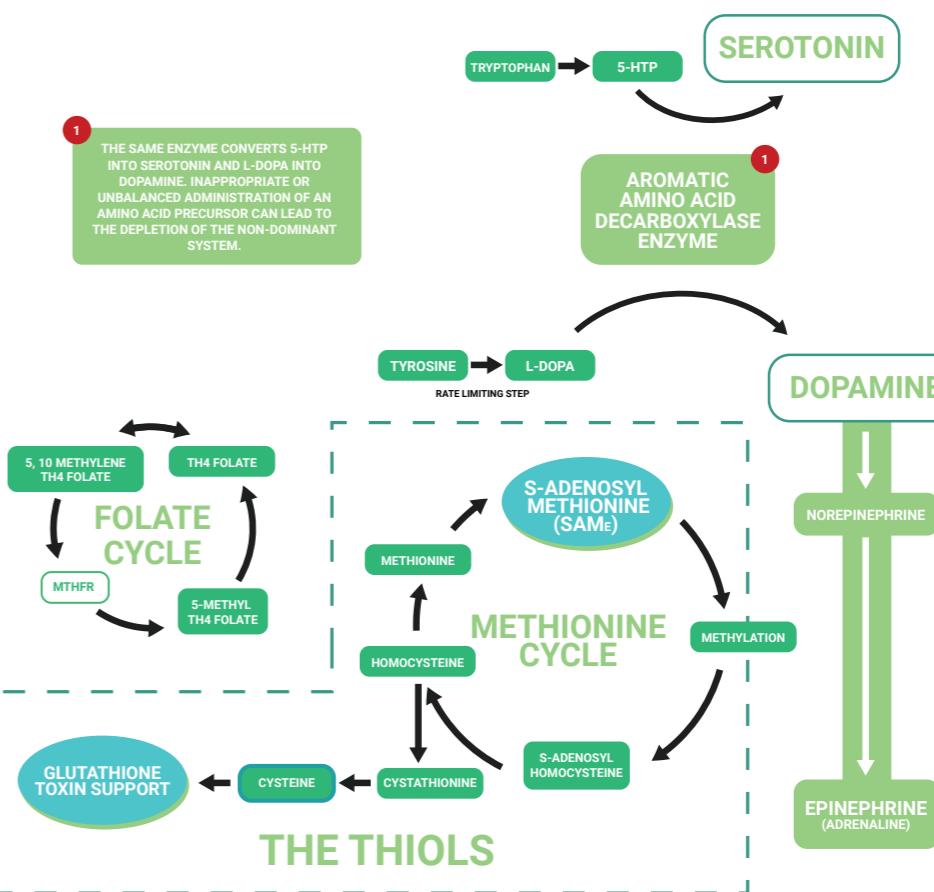
While the quality, safety and reliability of the nutritional supplement industry has improved with greater oversight, we believe it is necessary to find ways to ensure that we do not become comfortable with the status quo. We work hard to stay current with research on ingredients, manufacturing techniques and current plant trends. This information is used to maintain the consistency, quality and reliability of our premium ingredients.



How D5 Supports Brain, Gut and Overall Health - The Science*

D5 Protocol - The Basic Pathway

There are many ways that D5 supports brain, gut and overall health. The following graphic introduces the primary pathways within the brain that the D5 protocol supports. Implications and extended pathways are discussed later in the science section.



How to Use the D5 Protocol

Balanced Nutrient Protocols

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Balanced Nutrients, it is at the Heart of D5

Nutrition Supported by 25 Years of Research

Neurotransmitters are specialized chemicals which communicate information from the brain and transmit it to receptors throughout the body. This information is crucial for the body's proper functioning, as it controls many activities in the body, including emotions, memory, cognition, energy, appetite, and sleep.

When serotonin and the catecholamines are out of balance or low, this can distort or prevent proper communication throughout the body.

- Serotonin** is associated with mood, appetite, sleep, memory, learning, and temperature regulation

- Dopamine, norepinephrine, and epinephrine** (the catecholamines) are associated with control of movement, sensation, balance, motivation, focus, and the drive for reward

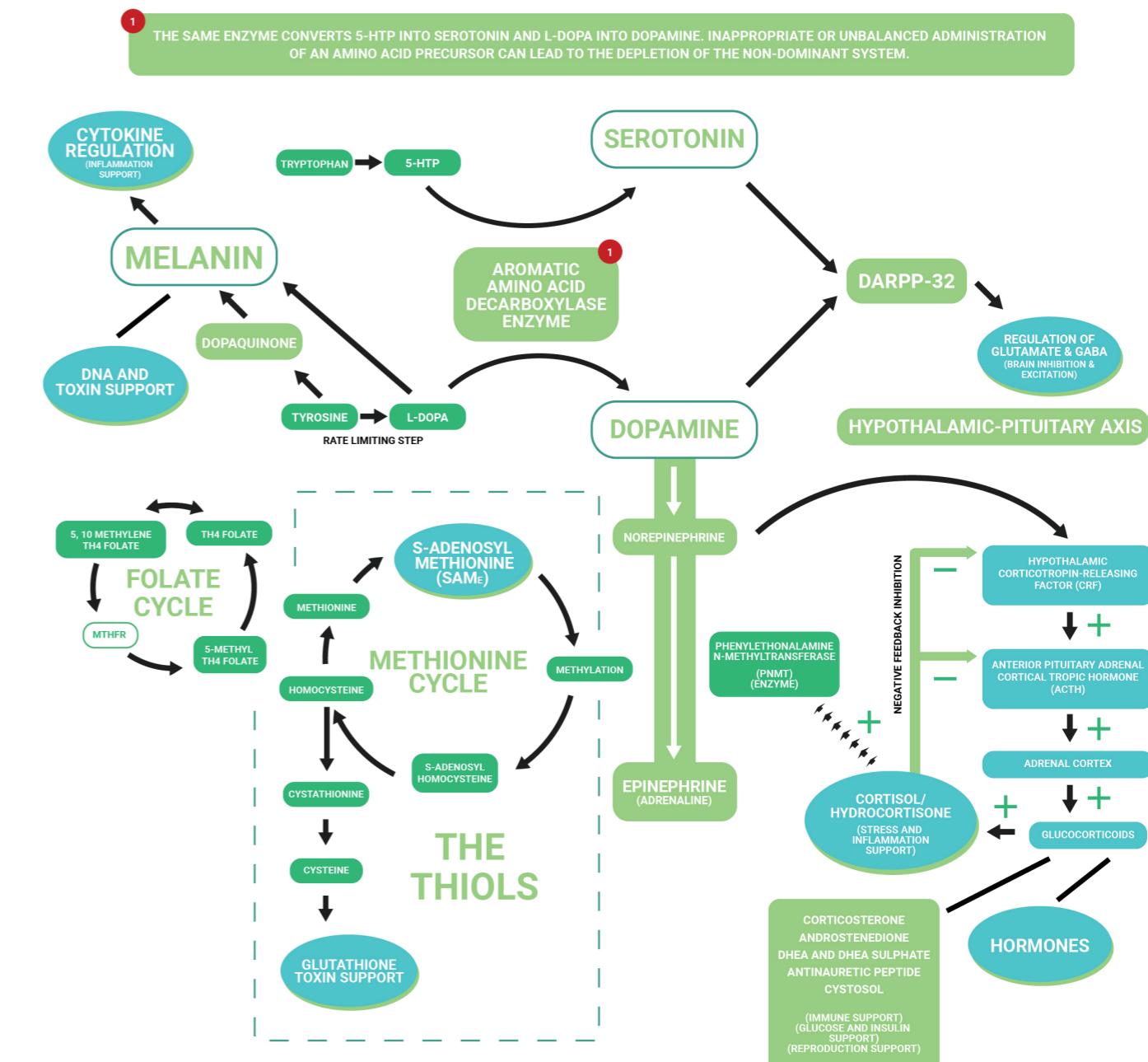
Serotonin and the catecholamines (dopamine, norepinephrine, and epinephrine) are known as the master neurotransmitters because they impact so many other neurochemicals, which has implications throughout the body.

The graphic to the right illustrates a broader view of how the interactions of amino acids and neurotransmitters support overall health.

Serotonin and the catecholamines cannot be directly administered to support brain health because they are unable to cross the protective layer around the brain known as the blood brain barrier.

D5's balanced nutrient formula focuses on supporting the neurotransmitters serotonin, dopamine, norepinephrine and epinephrine. These neurotransmitters participate in a complex system of communication between the brain, neurons and the rest of the body.

D5's nutrients have been selected as the result of research focusing on brain, gut and overall health that has continued over the past 25 years.



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Why Does a Balanced Shared Enzyme Matter?

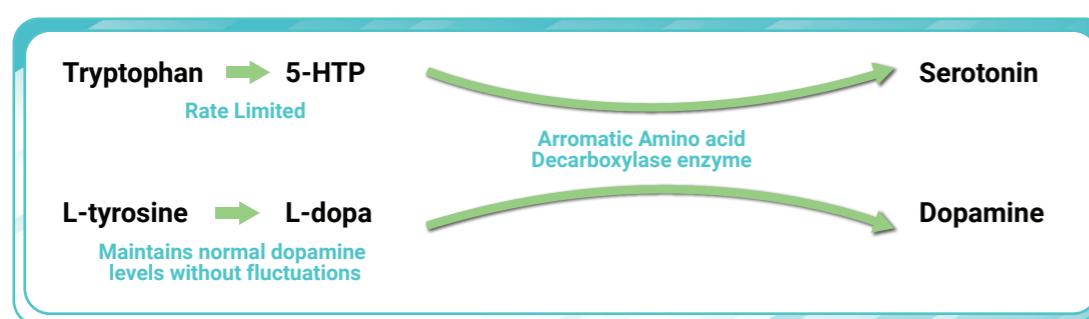
Balancing Enzyme Competition

Without properly balanced nutrients, it is possible to do more harm than good when using amino acid support. The need for balanced amino acid precursor administration is necessary because the enzyme that converts L-dopa into dopamine is the same enzyme that converts 5-HTP into serotonin. D5 is formulated to support this balance.

The proper ratio and chemistry of balanced administration is more complex than can be covered here. However, a simple explanation is that administering 5-HTP at a higher ratio than recommended will reduce the access

that L-dopa has to the shared enzyme. L-dopa will not be able to convert into dopamine as it should be able to do. The same is true if you administer tyrosine or L-dopa at a higher ratio than recommended. These precursors will crowd out 5-HTP, reducing its conversion into serotonin. Eventually, the reduced conversion of the outnumbered group will result in the depletion of serotonin or dopamine, depending on which precursor is outnumbered. This depletion will have implications throughout the body.

This depletion can occur from the administration of only serotonin precursors, only dopamine precursors, or an incorrectly balanced ratio of both serotonin and dopamine precursors. It is possible to do more harm than good by administering incorrectly balanced amino acid precursors.



5-HTP is the Most Direct Way to Support Serotonin

5-HTP crosses the blood brain barrier

5-HTP is freely converted into serotonin without biochemical feedback inhibition

5-HTP is more efficient at supporting serotonin than tryptophan

For serotonin support, 5-HTP is superior to tryptophan because tryptophan hydroxylase, which converts tryptophan into 5-HTP, is limited in terms of enzymatic activity. Once tryptophan hydroxylase reaches its threshold, additional tryptophan will not yield more 5-HTP. Therefore, tryptophan does not support serotonin as well as 5-HTP.

Tryptophan → 5-HTP → Serotonin

Rate Limited

5-HTP is found in very trace amounts in a very small number of foods. Therefore, 5-HTP supplementation is the most direct way of administering additional 5-HTP.

L-tyrosine and L-dopa have an Important Role in Supporting the Catecholamine System

L-tyrosine and L-dopa cross the brain's protective layer. When supplementing with L-dopa, L-tyrosine maintains normal L-dopa levels in the body without fluctuations. L-dopa is the intermediary molecule between L-tyrosine and dopamine. L-tyrosine's ability to maintain normal L-dopa levels is essential for consistent catecholamine levels. Until recently, L-tyrosine's importance was not well understood, making it an often overlooked nutrient for supporting catecholamine health.

The catecholamines can be supported by L-tyrosine and L-dopa (naturally sourced from Mucuna), which cross the brain's protective layer and convert into these crucial neurotransmitters.

L-tyrosine → L-dopa → Dopamine → Norepinephrine → Epinephrine

Maintains normal dopamine levels without fluctuations

The Catecholamines

L-dopa (naturally sourced from Mucuna) is more effective at supporting dopamine assuming that adequate levels of L-tyrosine are present. Therefore, many healthcare professionals choose to use L-tyrosine as a supporting base and increase Mucuna levels when they determine that additional dopamine support is needed.

The Benefits of CysReplete

CysReplete contains cysteine, a preferred nutrient source of sulfur. Sulfur is essential for the metabolism of 43 major chemical pathways and over 100 minor pathways. This includes glutathione, which is a crucial component of toxin maintenance.

CysReplete contains cysteine, along with selenium and folic acid. Cysteine supports immune health, normal toxin maintenance, normal glutathione levels, many metabolic pathways, as well as protein synthesis and structure. Selenium is important when using cysteine supplementation because it supports neuron health by interfering with the undesirable binding of methylmercury that can occur when supplementing with cysteine. This is a fact that many cysteine supplements have overlooked.

CysReplete is recommended when using NeuroReplete and D5 because both products utilize sulfur when supporting normal neurotransmitter levels. The body does not store excess sulfur. Therefore, without replenishing, sulfur depletion can occur. The impact of sulfur depletion may not be immediately evident. The loss of adequate sulfur may show subtle changes in immune health, toxin maintenance, metabolic function and protein health that slowly decreases overall health.



Benefits of Sulfur

- ✓ Sulfur supports normal immune health
- ✓ Sulfur promotes healthy, normal glutathione levels
- ✓ Sulfur plays an important role in catalyzing many important metabolic cycles
- ✓ Sulfur supports healthy, normal protein synthesis and structure
- ✓ Sulfur supports healthy, normal hair, skin and nails via collagen production and keratin

Why Cysteine is a Preferred Nutrient for Sulfur Support

- ✓ Cysteine is the most cost-effective sulfur supplement when comparing the ratios of sulfur obtained
- ✓ Cysteine and methionine are the only two amino acids with sulfur. However, methionine has homocysteine as a potentially negative byproduct
- ✓ Cysteine is the rate limiting step in the formation of glutathione. Therefore, it is the most direct and effective source for supporting glutathione naturally
- ✓ Oral glutathione supplementation may interfere with your body's natural ability to process glutathione from food sources which makes cysteine often more desirable than direct glutathione supplementation
- ✓ Cysteine is preferred to N-acetylcysteine (NAC) because NAC is not naturally found in the body. It can indiscriminately and undesirably acetylate other compounds in the body

How to Use the D5 Protocol

Balanced Nutrient Protocols

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Selecting D5 Versus NeuroReplete

Core Products

D5 and NeuroReplete are both core products. We recognize this may cause confusion for some individuals. For each patient, providers choose from D5 or NeuroReplete as their source of core support. With either product, we recommend always using CysReplete. Providers are also free to add additional support products, such as RepleteExtra, Mucuna 40%, TyrosineReplete and 5-HTP.

NeuroReplete is typically used to individualize their patients' mucuna doses with additional support items beyond what we recommend in the dosing sections on pages 8 or 9 – 10. They typically use an analytical measurement to individualize the support products and find that the process is made easier by starting without mucuna. These providers have various reasons and methods for making these recommendations. We do not advocate any one approach.

Therefore, we recommend that any provider looking to support the areas listed on pages 5 – 6 & 13 – 15 with no intent of using an external diagnostic method, which usually involves some form of lab testing or other analytical measurement, use D5 with the dosing recommendations found on pages 8 or 9 & 10.

For those providers only interested in excellent brain, gut and overall health with no intent of exploring various dosing levels, we offer a simple and scientifically sound protocol on page 8.

For many providers, D5 offers the best, balanced support. Providers that prefer to use



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A Quick Guide for Product Selection

Step 1:

We recommend always using CysReplete (see pages 27 – 28).

CysReplete contains cysteine, a preferred nutrient source of sulfur. Sulfur is essential for the metabolism of 43 major chemical pathways and over 100 minor pathways. This includes glutathione, which is a crucial component of toxin maintenance.

Step 2:

Select a Core Product

For core products, you choose between NeuroReplete and D5.

Question 1: Do you want a simple method and do not plan to attempt multiple dosing levels?

Yes – Select D5 and use the protocol on page 8.

No – Continue to next question.

Question 2: Do you plan to use lab testing or another analytical measurement for dosing (We do not offer recommendations for these methods; these are based on providers knowledge and experience)?

Yes – Select NeuroReplete.

No – Select D5 and use the protocol on pages 9 & 10.

Step 3:

Selecting Additional Support Products

Selecting additional support products is not necessary. We offer recommendations for use of RepleteExtra and Mucuna on pages 9 & 10. Beyond these recommendations, we find that providers are best served using their own knowledge and expertise to determine if any other products are necessary.





An Overview of CHK Nutrition's Amino Acid Dosing

START STEPS 1 AND 2 AT THE SAME TIME.

STEP 1



Always use CysReplete.

Noon	Late Afternoon	Evening
2 pills CysReplete	2 pills CysReplete	2 pills CysReplete

*We recommend taking the first dose at noon to reduce the likelihood of heartburn or stomach distress. If a patient experiences heartburn or GI upset, refer to the information on managing side effects or contact CHK Nutrition.

STEP 2

Choose D5 for balanced overall support.

Choose NeuroReplete if you plan to individualize.

*Do not use D5 and NeuroReplete at the same time.



Morning	Late Afternoon
4 pills D5	4 pills D5

OR



Morning	Late Afternoon
4 pills NeuroReplete	4 pills NeuroReplete

Do not add additional support until at least one week has passed. This will allow enough time to determine if more support is appropriate.

STEP 3a

Do you want additional amino acid support? If yes, add 4 RepleteExtra.

*Do not initiate until at least one week after starting step 2.



Noon	Late Afternoon	Evening
4 pills - Choose D5 or NeuroReplete	4 pills - Choose D5 or NeuroReplete	4 pills - RepleteExtra

Do not add additional support until at least one week has passed. This will allow enough time to determine if more support is appropriate.

Disclaimer: These statements have not been evaluated by the Food and Drug Administration (FDA). These products are not intended to diagnose, treat, cure, mitigate, or prevent any disease.



STEP 3b

Do you want even more amino acid support? If yes, add 4 more RepleteExtra.

*Do not initiate until at least one week after starting step 3A.

Morning	Noon	Late Afternoon	Evening
4 pills - Choose D5 or NeuroReplete	4 pills - Choose D5 or NeuroReplete	4 pills - RepleteExtra	4 pills - RepleteExtra

Do not add additional support until at least one week has passed. This will allow enough time to determine if more support is appropriate.

STEP 4

Do you plan to individualize?

Select any of the following as you determine appropriate. Dosing and amounts are determined by you.

5-HTP



TyrosineReplete



Mucuna 40%



IMPORTANT: If your patients will be using powders, they should have a highly accurate scale. CHK Nutrition offers several reasonably priced, highly accurate scales



Disclaimer: These statements have not been evaluated by the Food and Drug Administration (FDA). These products are not intended to diagnose, treat, cure, mitigate, or prevent any disease.

Additional Support Products

Use with Dosing Protocols on Pages 8 or 9 – 10

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Benefits of RepleteExtra

- ✓ RepleteExtra provides additional balanced nutrients to support healthy normal serotonin, dopamine, norepinephrine and epinephrine production
- ✓ RepleteExtra supports healthy normal neurotransmitter levels
- ✓ RepleteExtra promotes normal brain health and wellness
- ✓ RepleteExtra promotes normal healthy post-synaptic neuron firing
- ✓ RepleteExtra supports a normal healthy feeling of well-being
- ✓ RepleteExtra supports normal healthy appetite
- ✓ RepleteExtra supports normal healthy sleep
- ✓ RepleteExtra supports normal healthy memory and learning
- ✓ RepleteExtra promotes normal healthy control of movement
- ✓ RepleteExtra promotes normal healthy balance
- ✓ RepleteExtra supports normal healthy motivation
- ✓ RepleteExtra supports normal healthy focus



Benefits of Mucuna

- ✓ Mucuna 40% promotes normal brain health and wellness
- ✓ Mucuna 40% supports healthy normal dopamine, norepinephrine and epinephrine production
- ✓ Mucuna 40% promotes normal healthy post-synaptic neuron firing
- ✓ Mucuna 40% promotes normal healthy control of movement
- ✓ Mucuna 40% promotes normal healthy balance
- ✓ Mucuna 40% supports normal healthy motivation
- ✓ Mucuna 40% supports normal healthy focus
- ✓ Mucuna 40% supports nutrient needs associated with a normal healthy reward drive
- ✓ Mucuna 40% supports a normal healthy enteric nervous system, which is associated with gastrointestinal health (Gut health)



Benefits of TyrosineReplete/Tyrosine

- ✓ Tyrosine supports normal healthy dopamine production
- ✓ Tyrosine supports normal, evenly maintained dopamine levels without fluctuations
- ✓ Tyrosine promotes normal healthy post-synaptic neuron firing
- ✓ Tyrosine promotes normal healthy control of movement
- ✓ Tyrosine promotes normal healthy balance
- ✓ Tyrosine supports normal healthy motivation
- ✓ Tyrosine supports normal healthy focus
- ✓ Tyrosine supports nutrient needs associated with a normal healthy reward drive



Benefits of 5-HTP

- ✓ 5-HTP supports normal healthy serotonin production
- ✓ 5-HTP supports a normal healthy feeling of well-being
- ✓ 5-HTP supports normal healthy appetite
- ✓ 5-HTP supports normal healthy sleep
- ✓ 5-HTP supports normal healthy memory and learning

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Side Effects

Most patients can take amino acid nutrients without any side effects. The following is intended to be informative for healthcare professionals managing patients experiencing side effects from amino acids. Our understanding of side effects comes from our research using a randomized group of 494 patients over multiple clinical visits. Patients used for this analysis were only taking the nutrients found in CHK Nutrition's Amino Acid line with no additional nutrients or medications.

DOSING SHEET - check or write the desired dosing

NeuroReplete Protocol		MORNING	NOON	LATE AFTERNOON	EVENING
CHECK HERE		4 NeuroReplete	4 NeuroReplete*	4 NeuroReplete*	2 CysReplete*
					2 CysReplete*

OR

D5 Protocol		MORNING	NOON	LATE AFTERNOON	EVENING
CHECK HERE		4 D5	4 D5		
				2 CysReplete*	2 CysReplete*

OR

Alternate Protocol		MORNING	NOON	LATE AFTERNOON	EVENING
Write in the number of pills or grams of powder to take at each time					
NeuroReplete					
RepleteExtra					
B6					
TyrosineReplete					
Mucuna 40%					
5-HTP 98% Pure					
CysReplete*		2 Pills	2 Pills	2 Pills	

*CysReplete (2 pills, 3 times a day) is recommended when taking NeuroReplete or D5 to avoid sulfur amino acid depletion.
Any questions regarding products or dosing should be directed to your healthcare provider.

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The Best Approach Starts with Information

The best way to help your patients and to prevent them from permanently ending amino acid nutritional support is to educate them in advance that some patients experience side effects when starting amino acid nutrients.

Have a plan to help your patients

CysReplete is the most common reason that patients have issues. Offer them a plan to slowly increase CysReplete if they do have problems and instruct them to temporarily stop their amino acid supplements if they experience a side effect until they can consult with you on how to best manage this issue.

The best way to help your patients be successful when starting amino acid supplements is to schedule a follow-up visit for one week after they start their supplements. In addition, it is recommended patients have a follow-up visit one week after a dosing change to ensure that they are getting the best support and management for potential side effect issues.

Another way to help your patients is to encourage them to track when they take their pills. This can be done using an app, paper and pen or the dosing sheet that CHK Nutrition has created, which can be found at:

chknutrition.com/wpcontent/uploads/2017/08/CHK-Dosing-Protocol.pdf

Gastrointestinal (GI) Upset

Gastrointestinal (GI) upset is the most common side effect reported by patients (approximately 2%). There are several ways that patients have reported GI upset. They may experience nausea, bloating, gas, abdominal cramping, stomach pain, stomach pressure, stomachache, loose stool, or diarrhea. The most common culprits for GI upset are:

- CysReplete
- A nutrient poor diet/carbohydrate intolerance
- Patients with seriously unbalanced neurotransmitters

Some patients report that taking one or two crackers with their pills helps prevent GI upset when first starting amino acid nutrients.

Management of GI Upset Relating to CysReplete

CysReplete is the most common source of GI upset; it usually presents with heartburn and nausea. This is due to the acidic nature of cysteine, which contains a sulfur compound. Twenty percent of patients taking CysReplete in the morning experience GI upset. The mechanism of action is unknown. But, since a high percentage of patients have this reaction, it is recommended that all patients avoid taking CysReplete before noon. For many patients, this avoids the possibility of GI upset.

The ideal dosing for CysReplete is 2 pills just after noon, 2 pills approximately 4 to 5 hours before bedtime and 2 pills at bedtime.

For those patients that take their first dose after noon and still experience GI upset, the following protocol is recommended:

1. Instruct the patient to start one CysReplete around noon. They should not take CysReplete on an empty stomach.
2. After the patient has been symptom free for 3 to 4 days, add an additional CysReplete at noon.
3. After the patient has been symptom free for 3 to 4 days, add the third CysReplete approximately 4 to 5 hours before bedtime.
4. Continue the process of adding in one pill of CysReplete after the patient has been symptom free for 3 to 4 days until the patient has reached 6 pills daily (2 pills at noon, 2 pills approximately 4 to 5 hours before bedtime and 2 pills at bedtime).

○ Management of GI upset Relating to a Nutrient Poor Diet/Carbohydrate Intolerance

Patients with diets high in refined sugars and certain carbohydrates may experience GI upset when taking amino acids. Most patients do not experience GI upset from all carbohydrates. Carbohydrate intolerance is selective and is not caused by all carbohydrates. GI upset from carbohydrates usually present with nausea, gas, bloating or similar stomach sensations.

Carbohydrate intolerance is usually the result of:

- A regularly eaten carbohydrate
- Nutrient poor carbohydrates such as refined sugars, white breads, noodles and cereals

While GI upset relating to carbohydrate intolerance can occur any time of the day and any time after eating, most patients with a nutrient poor diet typically experience GI problems 30 minutes to 3 hours after eating breakfast. The easiest way to manage this form of GI upset is to have the patient track their food intake and the time that the GI upset is occurring. Then, instruct the patient to remove or change any foods believed to cause the GI upset.

The most common changes that typically help are:

- Eliminating foods with refined sugars
- Change white breads to whole or multigrain breads
- Change the type of noodles eaten
- Change a low nutrient item for a higher nutrient item

After these types of changes are implemented, most patients report that their GI upset is successfully managed if it caused by carbohydrate intolerance.

○ Management of GI Upset Relating to NeuroReplete

Patients that see the most supportive benefits from amino acid supplements may experience GI upset in the beginning.

In these cases, NeuroReplete/D5 is the source of the problem (Important: NeuroReplete and D5 are core support products. Providers should recommend either NeuroReplete or D5, but do not have patients take both at the same time).

The ideal dosing schedule for NeuroReplete/D5 is 4 pills in the morning and 4 pills approximately 4 to 5 hours before bedtime.

For patients in which CysReplete and a nutrient poor diet have been ruled out as a culprit, the following protocol is recommended:

1. Instruct the patient to start one NeuroReplete/D5 at bedtime (approximately 15 minutes before falling asleep).
2. After the patient has been symptom free for 3 to 4 days, add an additional NeuroReplete/D5 at bedtime.
3. Continue adding one additional NeuroReplete/D5 after 3 to 4 symptom free days until the patient is taking 4 NeuroReplete/D5 at bedtime.
4. After 3 to 4 symptom free days, the 5th NeuroReplete/ D5 should be added to the morning.
5. Continue adding one additional NeuroReplete/D5 after 3 to 4 symptom free days until the patient is taking 4 NeuroReplete/D5 in the morning and 4 NeuroReplete/ D5 approximately 4 to 5 hours before bedtime.

Heartburn Without GI Upset

Heartburn without GI upset that occurs after taking pills can easily be managed. The amino acid pills are large and can become stuck in the esophagus. When this occurs, it produces an irritation that leads to heartburn. To properly manage heartburn, have patients hold the pills in their mouths for 10 to 15 seconds with a small amount of water. As the surface of the pills start to moisten, instruct the patient to swallow. This allows the pills to travel down the esophagus without getting stuck. Some patients may need to take one pill at a time in order to successfully move the pills down the esophagus. For patients where this is not effective, have them twist open the capsules and dissolve the powder in water or juice, then drink the entire combination. (Note: we do not recommend opening CysReplete, as its primary ingredient contains sulfur. The smell and taste are unpleasant. For help with CysReplete, follow the CysReplete protocol for GI upset. Please contact CHK Nutrition if further assistance is needed).

Exhaustion/Hypersomnolence

Amino acids can support healthy, normal sleep. Patients that complain of extreme exhaustion when they start amino acid therapy need to have a sleep history taken. Many patients who complain of exhaustion have poor sleep histories. They will need to "pay back" the acquired "sleep debt" prior to sleeping normal. The easiest way to manage hypersomnolence is to have the patient start the amino acids on a Friday and spend the weekend sleeping. When trying to achieve normal sleep habits, changes in lifestyle and a new allocation of time (such as no longer staying up to watch television or playing on their phones) may pose a challenge to some patients.

Have you run into a side effect that you are uncertain how to manage?
Contact CHK Nutrition at 1-877-538-8388.

Note: The information presented is not treatment advice. Healthcare professionals should use their best judgement when caring for their patient



Frequently Asked Questions

Why should I wait at least one week before changing the dosing?

Unless the patient is experiencing a side effect, we do not recommend changing the dosing before one week because it can take up to one week for the body to be fully supported by the nutrients. By one week, the body has had the opportunity to fully integrate the nutrients into various systems. Changing the nutrients before one week doesn't allow the body enough time and you may actually change from a well-suited level to one that is less balanced.

My patient has heartburn, what do I do?

The most common side effect is heartburn. This is typically due to CysReplete, though there are other side effects that may occur. Before offering any patients CHK Nutrition's products, please educate yourself on how to manage the problem by orientating with our side effects section on pages 35 – 40. This information can also be found in our booklet, Managing Side Effects. We cover how to manage heartburn, as well as other common side effects. In addition, we recommend letting your patients know that side effects are rare and usually can be easily managed. Patients that are provided advanced knowledge about the problem and told how to handle the problem if it occurs are more likely to stick with a care plan after a side effect occurs.

What should I tell my patients before starting these products?

While side effects are rare, we recommend making patients aware of the most common side effects, which we discuss further in our booklet, Managing Side Effects, as well as on pages 35 – 40. Patients should be instructed on how to manage simple issues like heartburn and told to contact you if they experience any side effects that can not be easily managed.

D5 and RepleteExtra appear to be very similar formulations. Can I just use 4 D5 instead of 4 RepleteExtra to increase to Support Levels 2 or 3?

We strongly advise against using more than 8 D5 per day. There are some important differences between D5 and RepleteExtra. The most important difference is that D5 contains co-factors that may cause hypervitaminosis when consumed daily in excess. Another important difference is RepleteExtra does not contain our mucuna (standardized to 40%). For some individuals, this is a better balance and for those that would benefit from additional mucuna, we offer mucuna as a stand-alone product.

Do you have a different question, we provide further FAQ's on our website - CHKNutrition.com

Still have questions about dosing levels?

Call 1-877-538-8388 to speak with our dosing support team.*

*We respect that your time is in short supply. It is possible to schedule a time to speak to an advisor, some afterhours appointments are available. Please remember as a dietary supplement distributor, CHK Nutrition staff cannot offer information or address questions about disease management. We are proud to offer an amazing product that supports a normal, healthy system.



CHKNutrition.com