



NUTRITION THERAPY

NUTRIENT INJECTABLES
IV INFORMATION

Introduction to IV Nutrition Therapy



CLEAN FOOD FAST

BACKGROUND

Despite drastically improved living conditions in developed countries, nutritional deficiencies can still contribute to countless conditions that patients face. Although malnourishment is generally associated with developing countries, the prevalence of malnutrition in the Australia has climbed to 25-54% among patients admitted-to hospitals.

Even worse, many patients eating a complete diet will still be unable to absorb most macro- and micronutrients due to gastrointestinal problems such as intestinal permeability. A strong case can be made that, despite modern advances in medicine and surgery, nutrition in developed countries has regressed due to mass processing of most foods, which harms the gut and makes it more difficult to absorb micronutrients taken by mouth. We can't really say we are what we eat unless we actually absorb it.

Micronutrients include vitamins, minerals, trace elements, and amino acids that serve major roles in metabolic processes, cognitive homeostasis, antioxidant properties, and tissue function. Additionally, many of these ingredients, although typically thought of as just basic nutritional components, can have much more powerful effects when used in certain amounts through intravenous therapy. High-dose IV vitamin C therapy is a prime example, as such blood levels and effects could never be achieved orally.

Micronutrient deficiency affects approximately 2 billion people worldwide. This can be attributed to poor diets, obesity, ageing, or simply the lower micronutrient concentration in

today's food supply as a result of mass farming. An imbalance of these nutrients has shown to exacerbate many conditions including the exhibiting of key traits of cancer through DNA damage, neuronal decay in the central nervous system, and premature aging through mitochondrial decay.⁵ It can also cause fatigue and a general decrease in patients' quality of life.

Conditions that can potentially be supported through various IV therapies include malnutrition, chronic fatigue syndrome, cancer, cardiovascular disease, autoimmune diseases, atherosclerosis, asthma, angina, chronic pain, diabetes, high heavy metal levels, dehydration, gout, hypertension, irritable bowel syndrome, infections, rheumatoid arthritis, PMS, migraines, macular degeneration, and much more. It is therefore critical for health care providers to detect and treat nutritional deficits to prevent progression of illnesses, improve recovery, or even prevent hospital stays.

Beyond treating deficits, nutrition therapy may bridge gaps where traditional therapies fail. As we know, treatment guidelines are designed based on what is most successful. Unfortunately, they do not work 100% of the time, and most FDA monitored studies are performed by large pharmaceutical companies in pursuit of high profit margins. Many of these ingredients are natural, and therefore cannot be patented, which means pharmaceutical companies have no interest in paying for studies on these therapies. For this reason, these therapies will of course not be included in any mainstream treatment guidelines. Some patients may not respond to drug therapies that have been approved for their condition. Nutritional therapy could benefit patients who tried and failed other first-line medical therapies or need adjunct therapy.



WHY IV?

Although there are different ways to administer micronutrients, providing them via the intramuscular (IM) or intravenous (IV) routes may be the most effective ways of correcting the essential vitamin and mineral intracellular deficits in certain patients.

As the name suggests, intravenous administration provides direct delivery to the bloodstream; bypassing any obstacles in the digestive system that may hinder absorption. This results in 100% bioavailability. For example, the level attainable by oral administration of vitamin C is much lower than that of IV administration due to saturation of gastrointestinal absorption abilities and an increase in renal clearance as oral doses increase. It has been shown that the maximum concentration of vitamin C level after oral administration was 9.3mg/dl compared to the peak level of 80 mg/dl when given intravenously. This is important because solve benefits from nutrients are present only when certain concentrations are reached. For instance, the anti- viral effect of vitamin C has been demonstrated at a concentration of 10-15 mg/dl; a level not attainable by oral administration.

Oral absorption of a nutrient is often affected by food or impaired by other nutrients and minerals. For example, the absorption of zinc that is given orally is impaired by iron. Additionally, IV administration can prevent gastrointestinal side effects such as upset stomach, nausea, and vomiting which can be limiting for proper dosing and adherence. Improved absorption with reduced GI adverse effects may make IV administration a more suitable option for many patients. See section below titled "Oral Versus IV Bioavailability" for nutrient absorption rates when given orally versus via the intravenous route.

Put simply, many patients have eaten so poorly for so many years based on poor Western diet options and habits that they cannot easily correct their chronic conditions with proper dieting alone. Intravenous therapies involving vitamins, minerals, amino acids, and other natural agents that can bypass a dysfunctional gastrointestinal tract might be able to improve the patient's quality of life quicker and more efficiently, as well as improve ongoing chronic health conditions under physician care.

WHY CLEAN INFUSIONS?

The Compounding Lab is determined to alleviate many of the conditions caused by micronutrient deficiency through Clean Infusions. Clean Infusions applies to our IV nutrition line of products offered by The Compounding lab. This line offers a variety of vitamins, minerals, amino acids, antioxidants, chelating agents, and trace elements that can provide a tune-up of micronutrient metabolism when used correctly. This can potentially produce a marked increase in overall health for patients. Whether it is a broad spectrum immune-boosting cocktail to target various disease states or a tissue-healing protocol, Clean Infusion aims to lessen the micronutrient burden that has become increasingly widespread in today's population and to provide an alternative therapy for symptoms and diseases when traditional therapies have failed. Within our Clean Infusion line, clinicians may order varying "cocktails" of

several nutrient combinations or choose from our a la carte menu, from which nutrients are ordered individually.

These IV nutrients are meant to be administered for a specific patient during an in-clinic procedure under aseptic conditions. Proper materials and IV setup are required for intravenous administrations of any kind and the infusion or drip should only be performed by a registered, highly-trained individual. The Compounding Lab pharmacists are always available for guidance to explain on drip rates, supplies, drug compatibility and other necessary details pertaining to IV infusion. Please call our pharmacy prior to a procedure if you are unsure or have questioned regarding even the smallest detail. The patient's outcome and health are of the utmost importance.

Ask about our marketing materials, prescription templates, and clinical information!

References:

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ISSUES WITH THE GUT: LEAKY GUT

Our intestines are lined with a semipermeable barrier that “covers a surface of about 400m², which requires approximately 40% of the body’s energy expenditure.” The purpose of the intestinal barrier is to allow essential fluids and nutrients through, while keeping out harmful foreign substances like food antigens, commensal bacteria, pathogens, and toxins.

Indeed, 70-80% of the body’s immune system can be found in the gut and gastrointestinal tract.

If the permeability of this lining is compromised, it could allow antigens and other bacteria to pass into the blood stream, while simultaneously making it difficult to retain necessary nutrients. This leads to a condition commonly referred to as “leaky gut syndrome” (see Figure 1).

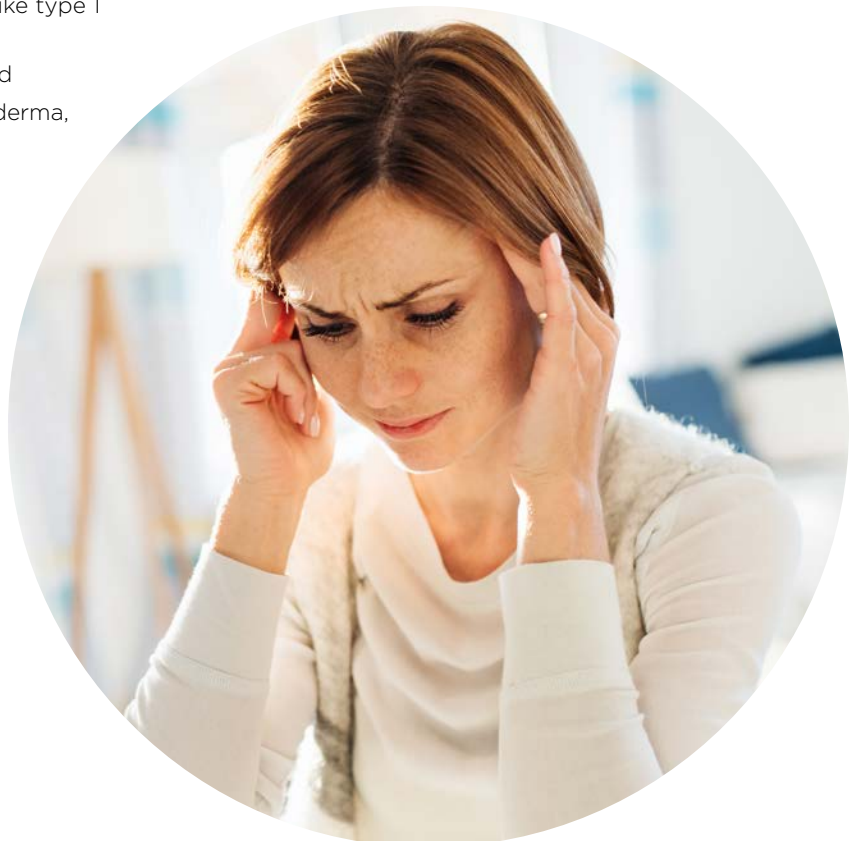
There are a variety of factors that have shown to disrupt the normal function of the gut barrier, including low-fibre, gluten, and processed-food diets, burn injuries, chronic alcohol consumption, and infection

FACTORS AFFECTING THE NORMAL FUNCTIONS OF THE GUT BARRIER

According to some practitioners, leaky gut syndrome could also be “the cause of a wide range of long-term conditions, including chronic fatigue syndrome and multiple sclerosis (MS).” While there is little evidence to suggest that certain conditions are directly caused by having a leaky gut, some health professionals claim that “leaky gut syndrome,” along with the concomitant loss in nutrients, could be linked to a wider range of health problems, including:

- Food allergies/migraine
- Tiredness/Chronic Fatigue
- Asthma
- Autoimmune disorders like type 1 diabetes and lupus
- Rheumatoid arthritis, and
- Multiple sclerosis scleroderma,
- Eczema
- Autism

Currently, there is no consensus on a cure for intestinal permeability; however, there are various treatment options for those dealing with nutrient loss that accompanies a “leaky gut.” Supplementation with IV nutrition therapy is a popular choice as it can bypass any gastrointestinal problems by delivering nutrients directly to the blood stream. IV nutrition therapy can also be formulated using almost any combination of nutrients to address a patient’s particular deficiencies.



ORAL VS. IV BIOAVAILABILITY

Bioavailability refers to the amount of unchanged drug that enters systemic circulation after being administered. It is measured in percentages and differs depending on a multitude of factors. Many drugs that are administered orally have differing bioavailability due to how the drug is made or its dosage form. A more technical list of factors affecting bioavailability of a drug includes: drug substance physiochemical properties (particle size, salt form, solubility, etc.); pharmaceutical ingredients (fillers, binders, lubricants, preservatives, etc.); dosage form characteristics (disintegration rate, dissolution time, product age and storage conditions).

The bioavailability of a drug can also be affected by a patient's physiological factors and characteristics, which differ from person to person. Some of these include: gastric emptying time, intestinal transit time, gastrointestinal abnormalities, gastric contents, other drugs/foods/or fluids present. Gastrointestinal pH, or drug metabolism.¹ Given orally, much of the nutrient given will never reach complete bioavailability. When these nutrients are given intravenously, they bypass the gut and liver, making the bioavailability essentially 100%.

AGENT ORAL BIOAVAILABILITY (INTRAVENOUS BIOAVAILABILITY IS 100%)

- 1 Acetylcysteine 9.1%
- 2 Arginine 20%
- 3 Ascorbic Acid 70-90% at moderate intakes of 30-180 mg/day. However, at doses above 1 g/day, absorption falls to <50%
- 4 B12 -Cyano/Methyl/Hydroxocobalamin 9-66% from dietary sources 25% from oral supplement
- 5 Calcium: Calcium gluconate-infants 60%, prepubertal children 28%, pubertal children 34%, adults 25%, absorption doubles in pregnancy
- 6 Glutathione Negligible
- 7 L-Carnitine 75% in diet up to 18% in supplementation
- 8 Magnesium Chloride 40-60% at low doses 15-36% at high doses
- 9 Potassium chloride 90-94%
- 10 B6 -Pyridoxine 75%
- 11 Selenium 61-89%
- 12 Taurine 12.5%
- 13 Zinc Sulfate 10%

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BASICS OF IV NUTRITION IN THE CLINIC SETTING

Intravenous (IV) nutritional therapy is a valuable option for the outpatient clinician since most modern diets often lack quality nutrition, leaving many patients' gastrointestinal tracts compromised, leading to disturbed microbiomes and intestinal permeability. These common conditions make it difficult for patients to maximally absorb the nutrients they need, even with a high quality, whole-food based diet. Conversely, IV nutrition can help patients feel much better as their bodies suddenly receive access to various micronutrients they were not receiving or absorbing before. While the patient may have only been getting by till now, they can begin thriving with IV nutrition therapy.

It should be noted that IV nutritional therapy as indicated in this guide is different from the type of IV nutritional therapy often referred to for more acutely ill patients in hospital and similar settings. In more acute cases, IV nutritional therapy is utilised as a necessary means to feed a patient who cannot utilise their gastrointestinal tract either temporarily, or permanently, to absorb nutrition. Those acute scenarios are cases of medical necessity.

The scenarios for IV nutritional therapy referred to in this guide pertain more to outpatients who have a functional, but not optimal, gastrointestinal tract or diet and could thus benefit from certain IV nutritional therapies to fill in the gaps.

IV nutritional therapy is generally administered via slow IV push or an IV drip from a bag. Different devices and IV sets are available to provide as many options and conveniences for a clinic's needs.

Common Carrier Fluids

Carrier fluids are the solutions diluting the active nutritional ingredients and will vary depending on the goal and type of therapy. The common carrier fluid types are as follows:

Preservatives and Benzyl Alcohol Warning

Most injectable products in the Clean Infusion line are preserved. This allows the vial to be utilised for up to 14 days from puncture. The 14-day dating is based on the Formulas that have been studied guidelines set. If no preservative is used the use by date of the vial is one hour after puncture and then remainder discarded,

If vials are not preserved, they can only be used once due to risk of contamination. They must then be dried. A preservative-free vial is

valuable if the patient is very sensitive to certain preservatives, or if the overvolume of injectable drugs used is so high that the total amount of preservative begins to reach dangerous amounts.

Benzyl Alcohol

Benzyl Alcohol is the preservative of choice for most sterile preparations. It is easily dissolvable in aqueous preparations, resilient to changes in pH and temperature, and is compatible with many active pharmaceutical ingredients. The most common strength used is 0.9%, or 9mg/ml solution. benzyl alcohol. For a 70kg patient, no more than 350mg of benzyl alcohol daily would be allowed.

Most preserved pharmaceuticals have a benzyl alcohol concentration of 9mg/ml. This equates to a max daily dose of preservative containing products that add up to 38.8ml. Most initial side effects would likely be neurological.

Despite the overall safety profile of benzyl alcohol, it should not be used in neonates. Benzyl alcohol was once a common preservative in intravascular flush solutions administered to infants, which resulted in "neurologic deterioration and death" in infants with low birth weights (Hiller et al. 1986).

Pathology Laboratory Workup Recommendations

It is strongly recommended to obtain a professional pathology workup and patient assessment prior to beginning intravenous (IV) nutrition therapy. While generally very safe when done properly, IV nutrition can be dangerous if administered without a proper, thorough assessment. For this reason, it is best to assess each patient individually and document all medical decisions accordingly before beginning therapy, as well as at regular intervals as therapy continues.

Some basic pathology workup that is generally recommended is below. Please note that this list only constitutes the minimum, but is by no means comprehensive, as a proper medical assessment is the responsibility of the qualified healthcare practitioner working with the patient and might include additional testing and assessment as needed on a case by case basis.

Primary Laboratory Tests — Pre-Infusions

FUNCTION ASSESSED

- Comprehensive Metabolic Panel
- Electrolyte/Renal/Liver/ Acid/Base/Sugar/ Protein Status
- Complete Blood Count
- Immune/Blood Status WBC
- Lipid Panel (If cardiovascular concerns)
- 25-Hydroxy Vitamin D3
- G6PD

Adequate antioxidant function of glutathione cycle in oxidative therapies such as high-dose Vitamin C or IV hydrogen peroxide.

Urine Dipstick / Renal Function — Additional Laboratory Tests

FUNCTION ASSESSED

- Intracellular Minerals
- Body Mineral Status
- MTHFR
- Possible MTHFR Gene Mutation & Related Inability to Activate Folate
- Amino Acids
- Amino Acid Deficiency or Excess
- Urinary Organic Acids
- Intestinal Permeability (Zonulin Test)

Note that some forms of assessment might need to be calculated from laboratory work such as renal function. Assessing renal function will be critical in making sure that patients can adequately clear anything administered and can be especially critical in certain IV therapies such as chelation. While the best way to assess or calculate renal function is hotly debated, many experts prefer the Levey formula to assess glomerular filtration rate. Although specific to the drug or formulation being administered, the dose will have to be lowered and or the length of time between administrations lengthened to accommodate for insufficient renal function. That is if it is safe to administer the treatment at all, which depends on the particular patient on a case by case basis.

Various IV therapies require different types of testing to assess therapeutic value and safety. All healthcare providers seeking to provide IV nutritional therapy should seek additional expert training so they can best assess, diagnose, treat and monitor patients.



1

ENERGY BOOST:**CLEAN INFUSION MYERS COCKTAIL**

If your immune system or energy levels need a boost, then the Myers Cocktail is the perfect solution. This is the original intravenous (IV) therapy solution, which – for many years – has benefitted hundreds of thousands of people by infusing nutrients and vitamins that are essential to the body directly into the bloodstream. The great thing about the Myers Cocktail is that it contains levels of vitamins and nutrients that you can't take orally, giving your body the boost, it needs sooner rather than later.

The traditional intravenous drip contained various B vitamins, magnesium, calcium and vitamin C among other medications. The Myers Cocktail is a fast and convenient way for your body to get what it needs directly, without having to rely on taking oral pills or liposomal vitamins.

Suggested Use

- Fatigue
- High Cellular and Metabolic Stress
- Immune System Boost (Post Viral recovery)
- Oxidative Stress
- Stressed Work and Life Balance

NUMBER OF VIALS IN THE KIT:**1 VOLUME: 100 ML****Ingredients:**

Magnesium Chloride Hexahydrate 5.08 mg/mL
 B5 Dexpanthenol 2.14 mg/mL
 B1 Thiamine hydrochloride 0.85 mg/mL
 B2 Riboflavin-5-Phosphate Sodium 0.017 mg/mL
 B6 Pyridoxine Hydrochloride 0.86 mg/mL
 B3 Niacinamide 0.85 mg/mL
 Calcium Gluconate 2.12 mg/mL
 B12 Hydroxocobalamin 0.008 mg/mL
 Vit C Ascorbic Acid 33.9 mg/mL
 Diluent: Normal Saline 500 mL



2 IMMUNE BOOST

MYER'S COCKTAIL + GLUTATHIONE + LYSINE HCL

Whether you are looking for a boost to your immune system during cold and flu season, suffer from a chronic illness and need some extra support, or are looking for an easy way to enhance your energy, this IV is a great place to start.

It is a comprehensive infusion of some of the key cellular ingredients needed for optimal energy and a healthy immune system. It provides powerful antioxidants such as vitamin C and glutathione as well as all the B vitamins which rev-up your metabolic processes, enhance energy production, promote neurotransmitter production, and manage methylation.

Minerals such as zinc, selenium and magnesium are also included due to their crucial role as co-factors (necessary helpers) for hundreds of metabolic reactions throughout the body. They are involved in DNA replication, messaging, immune function, hormone synthesis and energy production to name just a few.

Start with this IV if you're new to infusion therapy, need an immune boost, suffer from chronic illness, or experience chronic or recurring fatigue.

Suggested Use

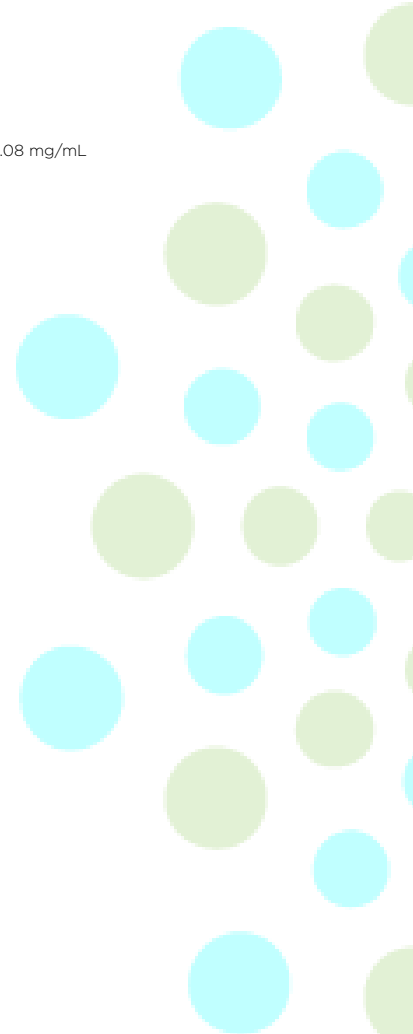
- Maintenance of Health
- Weakened Immune System
- Frequent Colds
- Allergies
- Anti-Oxidant Therapy
- Free Radical Damage Protection
- Fatigue
- Chronic illnesses
- Diabetes
- Fibromyalgia
- Multiple Sclerosis
- Malabsorption
- Irritable Bowel
- Chronic Fatigue Syndrome

NUMBER OF VIALS IN THE KIT: 3

Volume Myer's Cocktail: 100 mL, Glutathione: 5 mL, Lysine Hydrochloride: 2.5 mL

Ingredients:

Myers' Cocktail: Magnesium Chloride Hexahydrate 5.08 mg/mL
Dexpanthenol 2.14 mg/mL
Thiamine hydrochloride 0.85 mg/mL
Riboflavin-5-Phosphate Sodium 0.017 mg/mL
Pyridoxine Hydrochloride 0.86 mg/mL
Niacinamide 0.85 mg/mL
Calcium Gluconate 2.12 mg/mL
Hydroxocobalamin 0.008 mg/mL
Ascorbic Acid 33.9 mg/mL
Glutathione (L) Reduced 200 mg/mL
Diluent: Normal Saline 500 mL



3 WEIGHT LOSS:

MIC (METHIONINE/INOSITOL/CHOLINE) + VITAMIN B1/B2/B3/B5/B6/B12/L-CARNITINE + L-CARNITINE (FOR WEIGHT LOSS PLUS/ OPTIONAL)



Looking for a quick and easy way to boost your metabolism so you can burn off that stubborn fat once and for all? Well, your search is over. The ingredients in this intra-muscular shot, when used together, have the power to boost your metabolism, increase your natural ability to break down, fat and give you the energy boost you need to lace up your shoes and go for a jog or hit the gym.

Fat metabolism is very complex. Fats need to be broken down under the influence of a complex hormonal interplay between cortisol, insulin, growth hormone and thyroid hormone. Once they are broken down into fatty acids, fats then enter your mitochondria via a special “shuttle” molecule called “carnitine”.

In the mitochondria the citric acid cycle and the electron transport chain tear these fat molecules apart with the help of oxygen generating energy (in the form of ATP) along the way.

Methionine, choline and inositol (a few of the ingredients in this IV) all play a vital role in the breakdown, transport and use of fat for energy. B12 (cobalamin—also included) is critically important in the functioning of the nervous system, DNA synthesis and energy production.

Suggested Use

- Metabolic & Energetic Boost
- Reduction in Excess Body Fat
- Weight Loss Goals
- Athletic Energy Depletion

NUMBER OF VIALS IN THE KIT: 2-3

Ingredients MIC:

Methionine, Inositol, Choline
Vitamin B1/B2/B3/B5/B6/B12/L
L-Carnitine



4 SKIN GLOW & HEALING:

VITAMIN C + ZINC + VITAMIN B-COMPLEX + GLUTATHIONE IV

Do you suffer from dry, flaky skin? Acne? Rosacea? Dermatitis, psoriasis, or some other skin condition? Has your skin gotten saggy? Does it simply not have the glow it once did?

If so, you may not be giving the largest organ in your body (your skin!) the nutritional support it needs to function at its peak. The result? Any of the skin conditions above as well as a host of others.

This IV was formulated to provide the key ingredients in the formation of skin's most important components: collagen and elastin. It includes amino acids like L-proline, L-lysine, and L-glycine; minerals such as manganese, magnesium and zinc; and even powerful antioxidants like vitamin C and glutathione. These nutrients are important in building new skin, protecting the skin you already have, and mitigating the oxidative and inflammatory damage that is keeping your skin from the healthy, beautiful glow you desire.

While this IV alone can be an effective treatment for your skin, optimal results are obtained when you combine it with dietary changes (such as 6 weeks on an organic Paleo Diet for example), oral supplementation, and stress modification

Suggested Use

- Improved Skin Quality
- Wound Healing
- Joint Strengthening
- Ligament Strengthening
- Tendon Strengthening
- Bone Strengthening
- Blood Vessel Integrity



NUMBER OF VIALS IN THE KIT: 3

Ingredients:

Zinc (Zn)
Manganese
L-glutamine
L-Arginine
L-proline
L-glycine
L-Lysine
Multi-Bs
Glutathione (GSH)
Vitamin C (ascorbate)



5 HEALTHY GUT REPAIR IV

ZINC (ZN), L-GLUTAMINE, L-ARGININE, PLUS MULTI B, GLUTATHIONE (GSH) VITAMIN C (ASCORBATE)



The gut has long been considered the center of good health in traditional medical practices like Ayurvedic and Chinese Medicine. Until recently, the gastrointestinal tract was largely ignored by Western medicine. It was thought it was simply the place where nutrients were digested. However, recent research has shown that maintaining a healthy gut is essential to overall health. In fact, the intestinal tract plays a key role in so many biological processes, it's hard to list them all.

Here are but a few examples:

- 1 Digestion of food into small particles
- 2 Absorption of critical nutrients like amino acids, carbohydrates, fats and minerals
- 3 Elimination of waste products such as heavy metals via bile
- 4 Immune function—the intestinal tract is the LARGEST immune organ.
- 5 Barrier function—keeping out bacteria, viruses and fungi as well as other toxic substances from being absorbed. This is compromised in conditions such as IBD, IBS and “leaky gut”.
- 6 Inflammation—due to it's intimate relationship in immune function and it's regulation of foreign substances from crossing into our blood stream, the gut plays perhaps THE key role in inflammation.

Put simply, if your gut is out of balance, you cannot achieve optimal health.

The problem in modern society is that our intestinal tracts are easily compromised by factors such as stress, anti-inflammatory medicine (NSAIDs like ibuprofen), antibiotics, poor diets, alcohol consumption and smoking to name a few.

Signs of an unhealthy gut include but are not limited to abdominal pain, bloating, diarrhoea and constipation. If you suffer from any of these or other forms of digestive distress, we encourage you to come to have a Healthy Gut IV immediately.

You see, this IV was designed to enhance the proper function of the intestinal tract by adding elements like L-glutamine which is an important source of energy for the cells of the intestinal tract. Zinc and L-glutamine both reduce intestinal permeability (“leaky gut”) closing the tight-junctions between intestinal cells and thus protecting us from over-activating our immune systems and setting off inflammation.

Antioxidants like vitamin C and glutathione are important protectors of the mucosa and cells of the intestinal tract shielding against the damage done from intestinal inflammation.

All of these vitamins and minerals are brought together in one IV to help kick start the healing process for your gut.

Suggested Use

- Inflammatory Bowel Syndrome (IBS)
- Inflammatory Bowel Disease (IBD)
- Leaky Gut
- Stress
- Malabsorption
- Autoimmune Disease

NUMBER OF VIALS IN THE KIT: 4

Ingredients:
 Zinc Chloride: 10mg/ml, 1ml
 L-Glutamine: 30mg/ml, 5ml
 L-Arginine: 250mg/ml, 2ml
 Multi Bs, Vitamin B-Complex, 2.5ml
 Glutathione (GSH) 200mg/ml, 5ml
 Vitamin C (Ascorbic Acid/Sodium Ascorbate): 15g

6 NAD IV

What if there was a compound that could turn back time, restore energy, improve athletic performance, bring back clarity of thought, reverse depression and help cure cravings for alcohol and drugs even in the most addicted individuals?

There is such a substance. It is called NAD+, and it occurs naturally in every cell in your body.

Compelling research has shown that supplementing with NAD+ may help you withdraw from addictive substances safely, overcome anxiety and depression, handle acute and chronic stress more effectively, and cope better with PTSD.

In fact, clinics across the US are starting to use IV infusions of NAD+ to help people withdraw from drug and alcohol addiction with minimal symptoms in as little as 7-14 days of treatment. These individuals report feeling calm and content and say they lost their “cravings” after a full course of treatment.

And NAD+ may actually prolong life, protect DNA, slow down aging and help restore function in neurodegenerative illness due to its effects on the genes that govern aging.

Unfortunately, drugs, alcohol, stress, medications, chronic illness and age all contribute to a decrease in our NAD+ stores. As NAD+ goes down, so does our energy. Cells age and deteriorate. Your health falls apart at the very root.

This IV aims to undo that process by replenishing NAD+. Using IV infusion therapy we administer this anti-aging compound directly into your blood circulation so your cells have access to as much as they need.

Suggested Use

- Anti-aging
- Athletic Performance
- Anxiety
- Depression
- Addiction to alcohol
- Addiction to Narcotics
- Addiction to Benzodiazepines
- Mitochondrial Regeneration

Ingredients: NAD 100mg/ml



Between 3-14 consecutive days of NAD+ therapy combined with amino acid infusions, minerals, and B-Vitamins are typically recommended for full effect. Treatment is tailored to your individual needs.

7 JET LAG OR TRAVEL RECOVERY

SALINE, VITAMIN C (ASCORBATE), ZN (ZINC), B-COMPLEX, TRYPTOPHAN



Whether you've recently returned from that once in a lifetime trip around the world, you're a jet-setting executive or flight attendant who constantly travels for work, or even a night shift worker whose sleep schedule is out of whack from crazy hours; this IV will help you get back to your normal routine and feel better practically overnight.

We administer 1 litre of 0.9% normal saline which quickly rehydrates your body. Dehydration is a major factor during travel especially in dry un-humidified airplane cabins.

We also include L-tryptphan to help with sleep and natural melatonin production from your pineal gland. Then we throw in Zinc, B-complex, Vitamin C, these strengthen your immune system, meaning this IV infusion can be useful before and after long trips to help protect you against those inevitable colds that creep around in airplane cabins.

Suggested Use

- Airplane Travel
- Long Flights
- Travel Inside Enclosed Spaces like Trains, cars, busses
- International Travel
- Jetlag
- Night-Shift & Shift Workers

NUMBER OF VIALS IN THE KIT: 2

Ingredients:

0.9% NaCl,
Vitamin C (ascorbate)
Zn (Zinc)
B-Complex
Tryptophan



8 DETOX SUPPORT INFUSION

GLUTATHIONE (GSH)

Do you feel run down? Fatigued? Exhausted? Do you have a hard time focusing or feel your memory slipping? Have your weight loss attempts stalled despite your best efforts?

Your body could be overrun with toxins—a wide variety of noxious molecules that are keeping sick, tired, depressed, and overweight.

Detoxification is certainly as important as popular media would have you believe; the problem is most programs go about detoxifying the wrong way.

Ultimately, it's all about supporting your liver—the workhorse of your detoxification system and one of the most important organs in the body. When it's overburdened your liver can't do its job properly. Provide your liver the nutritional support it needs to function optimally with this IV. When you do, you may also experience increased energy and focus as a result of higher acetylcholine (a neurotransmitter) levels that come from the phosphatidylcholine in this treatment.

Suggested Use

- Fatigue
- High Stress Lifestyle
- Alcohol use
- Smoking
- Weight Loss Program
- Fatty Livers

Ingredients:
Glutathione 200mg/ml, 5ml



9 MIGRAINE IV INFUSION

SALINE/ MIXED B2 (RIBOFLAVIN) B6 (PYROXIDINE) B12 (COBALAMIN)

Migraines and other debilitating headaches can completely interrupt your life with excruciating pain, nausea, vomiting and sensitivity to light and sounds.

This IV starts with 1 litre of normal saline to which we add selected B vitamins shown in scientific literature to help drive methylation and oxidative phosphorylation which can be disrupted with migraines.

In some cases, we also add a non-steroidal anti-inflammatory (NSAID) to combat pain. Or Two different high-strength anti-nausea medications can also be added to this IV.

Ingredients
0.9% NaCl
B2: (riboflavin) 50mg/ml, 2ml
B6: Pyridoxine Hydrochloride 100mg/ml, ml
B12: (cobalamin): Methylcobalamin 5mg/ml, 2ml
Added as sublingual or IM Extra: Zofran (ondansetron) / Stemetil (Metoclopramide)



10 AMINO ACID IV OPTIONS

EXAMPLES: L-GLUTAMINE / L-ARGININE /
L-TRYPTOPHAN / L-TRYOSINE



What Causes Amino Acid Deficiency?

Essential amino acids cannot be made by our bodies. They must come from food. Some of us simply don't get enough from our diet. But more commonly, the problem is that we cannot properly break down and assimilate the protein we do eat. This is called malabsorption, and it actually affects how well all macronutrients (proteins, carbohydrates and fats) and micronutrients (vitamins, minerals) are processed and taken up by our digestive tract. Malabsorption can occur for a number of reasons.

You may not be able to properly break down food.

This is referred to as maldigestion, and it is usually caused by deficiencies in stomach acid, pepsin, or digestive enzymes. Protein digestion begins in the stomach where pepsin is secreted.

This triggers the pancreas to release pancreatic enzymes into the small intestine. If this process is inhibited or you don't produce enough of these chemicals, protein is not properly broken down and you don't get the amino acids you need.



Another associated problem is intestinal inflammation. This can cause damage to the layer of small intestine cells that play an essential role in digesting protein. These cells contain enzymes that activate the pancreatic enzymes mentioned above. They are also responsible for the uptake of amino acids into the digestive tract, into the lymph vessels that transport nutrients to the liver, and into the circulation. When these intestinal cells are damaged, these functions cannot be performed correctly.

Common conditions that lead to damage and intestinal inflammation are:

- Stomach surgery
- Pancreatitis
- Liver damage
- Alcohol
- Infections
- Diabetes
- Small Bacterial Overgrowth (SIBO)
- Antibiotics
- Auto-immune Diseases - e.g. Celiac, Crohn's Disease
- Stress
- Intense Exercise

Suggested Use

- Malabsorption
- Leaky Gut
- Anxiety
- Depression
- Fatigue
- Body Building
- Athletic Performance
- Autoimmune Disease
- Growth Hormone Deficiency
- Hair Loss

The good news is that a growing body of research shows that amino acids can heal the intestinal damage from inflammation while providing your body the needed components for protein synthesis.

Amino Acids Heal Intestinal Damage from Inflammation

We have begun to learn more about how amino acids improve intestinal health from what may seem an unlikely population: burn victims. You see, people who suffer from burns have a tremendous stress response after their injuries, and this quickly manifests itself as stomach ulcers and gut inflammation.

Interestingly, a recent study with burn injuries showed that early treatment with an oral solution containing L-glutamine prevented damage to the intestinal barrier, promoted repair and alleviated the inflammatory response.

This is prescient to our discussion here, because L-glutamine is a very abundant amino acid, and is the preferred fuel for the cells of the intestinal tract. It contributes significantly to the repair and regrowth of the cells of the intestinal tract, allowing for better digestion and absorption of all other nutrients and amino acids.

Another amino acid, L-arginine, was studied together with L-glutamine, and this combination has been shown to heal inflammation of the gut and repair what is called “leaky gut”—a leading cause of malabsorption. In a 2015 study² on animals, investigators showed that treatment with L-arginine and L-glutamine prevented colitis (inflammation) and repaired intestinal epithelial cells preventing abnormal “bacterial translocation” – a condition where bacteria from the gut “leak through” into the circulation causing inflammation in the entire body.

Amino Acids as Triggers for Hormones

Certain amino acids have powerful actions as triggers for hormones. For example, L-arginine IV infusions are usually given to diagnose growth hormone deficiency as was done in a recent 2015 study of 243 children.³ The normal response to an L-arginine amino acid IV infusion is an immediate spike in growth hormone production. Those who do not respond can be suspected as having a growth hormone deficiency.

Neurotransmitters and Amino Acids

Another critical function of amino acids is building neurotransmitters— molecules that influence our behaviour, mood, cravings and sleep.

One of the most important neurotransmitters is serotonin, which is derived from the amino acid L-tryptophan. Low levels of serotonin can cause insomnia, cravings for sweets, depression, and anxiety. Most of the major prescription antidepressants work by affecting serotonin levels. However, supplementing with L-tryptophan can raise the levels of serotonin naturally and may work much faster.

In one study 459 healthy women aged 45-65 were given a diet rich in L-tryptophan.

The results were impressive. The women experienced improved moods, faster reaction times, “high energy”, sustained attention and higher levels of happiness. These volunteers began to ignore “negative thinking” and had more positive outlooks.

But serotonin isn't the only neurotransmitter impacted by amino acids. Dopamine and norepinephrine—responsible for our levels of contentment and alertness, respectively—are also built from these essential compounds. In a recent review⁵ investigators concluded that supplementation with the amino acid L-tyrosine improved levels of dopamine and norepinephrine in the short-term, reduced stress, and lead to improved cognitive performance. In yet another reviews the authors concluded that supplementation with L-tyrosine or another amino acid, phenylalanine, raised dopamine levels in the brain.

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VITAMIN INJECTIONS

When nutrients are injected directly into the bloodstream, they bypass the digestive system and are “pushed” directly into cells where they can be more effectively utilised by the body. Weekly vitamin shots are an effective way to increase your energy, strengthen your immune system and promote weight loss.

1 Active B12

Deficiencies in such nutrients as vitamin B-6, all B-complex vitamins, and especially vitamin B-12, can contribute to low energy. Treatment is easy and includes getting a B-12 injection. Since B-12 is difficult to absorb through the stomach, the injection helps proper absorption. B12 has been shown to have beneficial results in reducing stress, fatigue, improving memory, and cardiovascular health, and many attribute weightloss to this small IM shot.

2 Vitamin B Complex

Our Vitamin Complex Shot is essential for healthy nerve function and healthy nerve sheaths; as well, they maintain skin and eye health and help produce red blood cells in the body to assist with DNA synthesis and repair.

THIS SHOT CONSISTS OF:

Vitamin B3, Vitamin B1, Vitamin B2, Vitamin B5, Vitamin B6, Vitamin B12.

3 Metabolism Boost Weight Control + Vitamins

Our Metabolism Boost IM injection will improve your weight loss program and boost your energy. It includes 3 fat-burning amino acids, Vitamin C, B12 along with the B Vitamins.

THIS IM CONSISTS OF:

Methionine, Inositol, Choline, Vitamin C, Vitamin B1, Vitamin B2, Vitamin B5, Vitamin B6, Vitamin B12, Vitamin B3

4 Vitamin D3

VITAMIN D3 500,000 IU/ML MDV - 1 ML VIAL

Vitamin D3 (cholecalciferol) is both a vitamin and a hormone. Vitamin D3 is manufactured by the body in response to the skin's exposure to UVB rays in sunlight. Without vitamin D3, the body cannot absorb calcium. Vitamin D powers over 300 processes in the body, and deficiency is highly correlated with many chronic disease states.

POTENTIAL USES:

Familial hypophosphatemia, Fanconi syndrome, hypoparathyroidism, osteomalacia, psoriasis, renal osteodystrophy, rickets, osteoporosis, vitamin D3 deficiency induced falls, cancer prevention, dental caries, hyperparathyroidism-related bone loss, multiple sclerosis, respiratory tract infections, rheumatoid arthritis, tooth retention, weight loss, asthma, cardiovascular disease, chronic kidney disease, improving lung function, Type 2 diabetes, hyperlipidemia, hypertension, overall mortality, myelodysplastic syndrome, periodontal disease, periodontal disease for adults aged 50 and older, reducing PMS symptoms, proximal myopathy, seasonal affective disorder, myalgia, vaginal atrophy, UTI prevention, influenza

ADMINISTRATION: IM ONLY

Note: Oil formulations should never be injected intravenously unless specially formulated and approved for such purpose as formation of oil embolus becomes a risk.

Dosage Range: IM-50,000-200,000 IU intramuscularly weekly - monthly

Safety: Likely safe when used appropriately.

Pregnancy: Likely safe when used appropriately.

Lactation: Likely safe when used appropriately.

Potential Side Effects: Hypervitaminosis D (hypercalcemia, headache, nausea, vomiting, lethargy, confusion, sluggishness, abdominal pain, bone pain, polyuria, polydipsia, weakness, cardiac arrhythmias, soft tissue calcification, calciuria, nephrocalcinosis)

5 Glutathione IM / PUSH

Glutathione is our master antioxidant, is important for detoxification, energy and stress recovery.

VIAL: GLUTATHIONE 200MG/ML + STERILE INJECTION SOLUTION 5 ML VIALS, 10 ML VIALS

Glutathione is a tripeptide composed of the amino acids glycine, cysteine, and glutamic acid involved in DNA synthesis and repair, protein and prostaglandin synthesis, amino acid transport, metabolism of toxins and carcinogens, immune system function, prevention of oxidative cell death, as well as enzyme activation. Glutathione is primarily synthesized in the liver.

Glutathione deficiency is associated with aging, age-related macular degeneration, lung and gastrointestinal diseases, preeclampsia, Parkinson's disease and other neurodegenerative diseases, as well as a poor prognosis in AIDS.

POTENTIAL USES:

Antioxidant, cardiovascular health, cystic fibrosis, CNS disorders (Parkinson's disease, Alzheimer's Disease, schizophrenia, autism), chemotherapy toxicity, aging, radiation injury reduction, chelating agent, alcohol-induced fatty liver, cirrhosis, hepatitis, anti-viral, asthma*

ADMINISTRATION: IV /IM / INHALATION

Should be diluted with an equal volume of sterile water for injection and slow pushed no faster than 1ml per 30 seconds through the IV set (Y port). We recommend not to mix in the IV bag with other ingredients due to compatibility concerns. Oral shows little effect on systemic levels, so is not preferred unless sublingually dissolved and absorbed.

Dosage Range: IV-1-18 ml (at 200mg/ml glutathione) IV slow push. It is common practice to start at 500mg (2.5ml at 200mg/ml) and increasing by 500mg more each infusion as needed or tolerated. Doses of 1,000mg are typical maintenance in most uses, and doses over 2,000mg are often reserved for use in certain conditions such as Parkinson's. Inhalation-100-200mg (200mg/ml nebulizers available) inhaled 1-2 times daily via nebulizer

Safety: Insufficient reliable data available; avoid using.

Pregnancy: Insufficient reliable data available; avoid using.

Lactation: Insufficient reliable data available; avoid using.

Use with caution in known sulfur allergy or sensitivity, as well as in asthmatics. Test dosing is recommended.

Potential Side Effects: (Minimal) respiratory difficulty, loose stools, flushing

*Special Note: Glutathione irritates Asthmatics



GLUTATHIONE

Inhaled Glutathione

Reported in one randomised, control study 2 of 8 people to cause bronchospasms in patients with stable, mild asthma

- A** GSH contains a sulfhydryl group that may cause sulfite formation
- i. Healthy individuals are found to be sensitive at values of >5 ppm
 - ii. Asthmatics sensitive to <1 ppm of sulfite 1
 - iii. Study did not measure resulting sulfite levels after GSH was inhaled but did study inhaled metabisulfite, a substance used to measure airway responsiveness to sulfites, in these patients and saw a correlation between which patients were affected and the severity of the attacks
- B** GSH is involved in the formation of leukotriene C4 and D4, both of which are known bronchoconstrictors that play a role in asthma². Not completely contraindicated in patients with asthma.
- i. Some clinical practices test for sulfite sensitivity and use a test dose in the office and if bronchoconstriction does not occur then they will start home therapy
 - ii. Sulfite sensitivity in asthmatics only suspected to be 4-11%¹
 - iii. Bronchoconstriction was prevented by administration of bronchodilator before therapy²

Intravenous Glutathione

Does not effectively increase GSH levels in the epithelial lining fluid (ELF) of the lower respiratory tract responsible for the oxidative stress response

*Not enough GSH reaches the ELF to cause enough sulfite production to cause bronchoconstriction in sulfitesensitive patients 3
Recommendation:

Intravenous glutathione can be used in asthmatic patients as the risk of bronchoconstriction

is low. but the relationship to sulfite sensitivity should be considered and identified if a patient does

report breathlessness after a treatment.

BACKGROUND:

Glutathione {GSH}-reactive oxygen species {ROS) scavenger that helps prevents an imbalance between oxidants and antioxidants

Asthma-obstructive airway disease presenting with bronchoconstriction and sensitivity resulting in breathlessness and trouble breathing

- Inflammation leads to ROS thought to contribute to the severity of asthma attacks
- Glutathione supplementation could provide protection through antioxidant effects
- Decreased glutathione levels have been recorded in many obstructive airway diseases including asthma
- Supplemented as a form of treatment in patients with idiopathic pulmonary fibrosis. cystic fibrosis.

CHELATION THERAPIES

EDTA / Magnesium / Multi B's

Chelation therapy removes and prevents accumulation of heavy metals, such as lead and cadmium that can bind to molecules that are essential for the regular function of the body. Chelating agents are infused into the blood where it will strongly bind to metal ions until they are both excreted as a complex. Edetate disodium (EDTA), the main chelating agent in Innovation's Standard Chelation Cocktail, was first discovered to have medical use after WWII when it was used to treat lead poisoning in naval shipyard workers using lead-based paint. Chelation therapy is mostly known to be used in cases of lead and cadmium poisoning to remove these heavy metals. However, it can also be used to prevent accumulation of these and other heavy metals in patients who have not been heavily exposed.

Studies have shown an 18% reduction in a composite endpoint of death, myocardial infarction (MI), stroke, coronary revascularization, or hospitalization for angina for post-MI patients. Diabetic patients showed an even greater risk reduction of 41%. 2 Animal studies have also demonstrated effectiveness of chelation therapy with AIS. Transgenic AIS mice that were treated with iron chelators showed delayed disease onset and increased li-fe expectancy compared to those that were treated with saline. 3.4 Genetic deficiencies of certain enzymes, such as GSH transferase M1, results in a decrease in glutathione production leading to impairments in liver detoxification capacity. These patients are predisposed for toxic metal poisoning. Case reports of this deficiency from two patients who suffered multiple sclerosis who were treated with chelation therapy repeatedly showed symptom improvement after chelation therapy infusions.

Chelation therapy removes and prevents accumulation of heavy metals, such as lead and cadmium that can bind to molecules that are essential for the regular function of the body.

The Clean Infusion Standard Chelation Therapy consists of magnesium chloride, pyridoxine, dexparithenol, procaine, B-complex, ascorbic acid, EDTA disodium dihydrate, and sterile water for injection. It has been shown that including micronutrients may optimize benefits and also help replete ions that may inadvertently be removed during the chelation.

Medical Emergencies:

Though intravenous therapies are typically very safe when utilised appropriately by trained healthcare professionals, intravenous therapies can also be much more dangerous than most other administration routes due to rapid 100% bioavailability of drug components. Essentially the body does not have time to dilute, filter, or metabolize the infused ingredients before they hit the blood stream and other areas of the body. For this reason, significant safety measures should be in place for a medical clinic that administers any type of IV therapies.

Examples of dangerous scenarios during IV infusions include, but are not limited to:

- Drug Allergy/Anaphylaxis
- Drug Hypersensitivity
- Impaired Renal Clearance and Drug Buildup/ Toxicity (Ex: Chelation Therapy in Renal Impairment)
- Electrolyte Shifts and Related Cardiovascular Risks (Ex: Potassium Infusion)
- Drug Side Effects (Ex: Hypotension from magnesium infusion)

For these reasons and more it is highly advised to always have personnel on staff during IV infusions with extensive training and competency in medical emergency procedures. Basic CPR training would not suffice for this, as the various nutrients and/or drugs being administered require expert medical knowledge to properly address medical emergencies. Medical clinics administering IV infusions should always have an adequately and currently stocked emergency kit immediately available with an array of medications commonly needed for medical emergencies. It is also highly advised that medical clinics administering IV infusions always have an expertly trained clinician on staff with current CPR Life Support. The training should teach the clinician full competence on the medications and doses used for various medical emergencies, as well as various techniques including, but not limited to, advanced cardiopulmonary resuscitation.



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