



EST. 2022

## NAD+ (Nicotinamide Adenine Dinucleotide) Information Sheet

NAD+ is an important coenzyme in the body that contributes to the production of energy, protein modification, and DNA repair at the cellular level. Nicotinamide Adenine Dinucleotide works with the mitochondria to refuel the powerhouse of your cells. Even as a naturally occurring substance, NAD+ can be lowered by things such as poor diet, aging, stress, sleep issues, and drug or alcohol use. It is essential for a healthy neurological system and organs. Scientists have found that NAD+ therapy helps the body function better.

Unfortunately as we age, NAD+ levels in the body decline. Scientists have found that lower levels of NAD+ can lead to neurodegenerative disorders, fatigue, slowing metabolism and increased cancer risk. While certain so-called precursors can be obtained via diet, NAD+ itself cannot. So supplementation is required to maintain optimal NAD+ levels.

### BENEFITS

NAD plays a vital role in hundreds of chemical and bodily functions, making the benefits of receiving treatment endless. Proactive care and treatment via NAD therapy is one of the best ways to stay a step ahead of aging by maximizing your overall health. After age 40, our bodies significantly make less NAD. This decline in coenzyme production is when symptoms of aging such as fatigue and a loss of mental performance are experienced most.

THERE ARE SEVERAL BENEFITS TO USING NAD+ REGULARLY. THE FOLLOWING IS A LIST OF JUST A HANDFUL OF THE KNOWN USES:

- AUTOIMMUNE DISORDERS
- REDUCES CHRONIC PAIN
- REDUCES CHRONIC FATIGUE
- REDUCES ANXIETY, STRESS, PTSD, INSOMNIA
- IMPROVED SLEEP
- ENHANCED MOOD
- HEALS BRAIN ON A CELLULAR LEVEL
- IMPROVED MENTAL CLARITY
- REVERSES AGING FROM THE INSIDE OUT
- DECREASES CRAVINGS
- DNA REPAIR
- PROTECTS LIVER
- ATHLETIC RECOVERY
- INCREASES CHEMICAL REACTIONS THAT BOOST THE METABOLISM
- INCREASES BLOOD FLOW

### NEUROLOGICAL BENEFITS

The brain requires a constant supply of oxygen and glucose to generate the energy required for healthy function. Despite its small size, the brain consumes approximately 20% of the entire body's oxygen supply. Given its energetic requirements, it should come as no surprise that researchers are increasingly making connections between brain and mitochondrial health (mitochondria are "power horse" organelles found in most cells and are responsible for cellular respiration and energy production). In line with this idea, increasing NAD+ has been shown to improve mitochondrial function in mouse models of Alzheimer's disease and a fruit fly model of Parkinson's disease.

*NAD IV treatments can help maintain and protect mental clarity, focus, and protect against neurodegenerative diseases for a healthier and happier quality of life.*

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### Improved Metabolic Function

One major role it plays within the body is oxidation-reduction (redox) reactions which are part of the metabolic system. These reactions convert food into the energy the body needs to function properly. Metabolism at the cellular level depends on NAD and the liver is one of many tissues that is sensitive to declining levels of NAD. Studies in mice have shown that increasing NAD can support healthy liver function, particularly when metabolically stressed by over-nutrition or alcohol overconsumption [4].

NAD+ IV treatments can help:

- Increase energy levels
- Decrease fatigue
- Restore muscle function and athletic performance
- Improve metabolism
- Assist with weight loss

### Too Many Nights of Partying

NAD+ is beneficial for those who are suffering the painful effects of too many nights of partying. NAD+ can be extremely effective in correcting the neurotransmitter imbalance caused by a sudden stop in the consumption of all kinds of "hard stuff" [5], which is usually responsible for symptoms like nausea, fatigue, cravings, and headaches.

NAD+ IV treatments can help:

- Improve mood/depression
- Improve mental clarity
- Boost energy levels
- Improve sleep
- Reduce cravings

The body naturally produces NAD, but as the body ages, overall levels of this important coenzyme decrease and leads to the development of age-related conditions [6]. NAD increases the activity of certain proteins, which have been linked with a slower rate of aging and influencing DNA repair.

### Muscle Recovery

NAD+ may also help improve muscle function and recovery as you age. One study found that depleted levels of NAD+ lead to a "dramatic" drop in muscle strength and endurance, implying that NAD+ is a critical component in muscle function and recovery. Once NAD+ supplementation begins, precursors led to better-supported DNA repair and health of muscle tissue within the first week. NAD+ is one of the most important factors in the human body for energy which helps our systems use food and exercise for strength and stamina [9].

NAD IV treatments can help:

- Restore muscle function and athletic performance
- Improve muscle recovery, damage, & pain
- Increase energy levels

### How long do NAD infusions typically take?

- 250 mg – 90 min
- 500mg --> 2-4 hours
- 750mg --> 4-6 hours
- 1000mg --> 6-8 hours

The experience for everyone is different and you may be able to tolerate a quicker infusion rate or may need to slow it down and/or reduce the dosage.

### What are the side effects?

- Chest tightness / pressure
- Abdominal cramping
  - Feeling flush
  - Nausea
  - Headache

These are common side effects our patients experience, but slowing down the infusion rate will decrease or eliminate them completely.

### What You Can Expect During Your NAD IV Therapy

- Different IV vitamins and nutrients require different amounts of time to be administered. NAD+ is on the longer end. Please allocate up to 2 hours for your Starter NAD appointment, and ~2 hours for your Pro NAD (though some people are able to drip faster).
- While most feel perfectly fine during NAD IV Therapy, some may experience mild discomfort, which can include light nausea, headaches, anxiousness, or sensation in the chests or muscles. Typically, a slower drip will alleviate any such feelings. For most, any such sensations cease after the IV administration is complete. Medication to help counteract any such discomfort if deemed necessary.
- Since NAD+ is utilized in the body's daily metabolic processes, we recommend regular administration. For the most benefit, NAD+ a part of their ongoing health and wellness routine!
- After initial treatment, once a month NAD+ supplementation is found to be ideal. For others, more applications, increasing frequency is best.

### What is a NAD Protocol?

Even though one NAD+ IV will provide you with some benefits, most patients benefit the most from a series of infusions. If you have never had NAD+ IV treatments before, it is recommended to start at a dose of 100-150mg, and then slowly increase over 3-4 treatments over 7-10 days.

Typical treatment for the ultimate recovery is 500 – 1000mg of NAD daily over 4 – 10 days (on a case by case basis, and will vary for each individual based on consultation with physician), and each infusion will typically take 2 – 4 hours. Anti-aging treatments are generally once every other week for 3 treatments, then monthly for maintenance thereafter. 500mg NAD will be infused over 2 – 4 hours. Tailored to your individual needs and desired outcome. Neurodegenerative disorders are usually treated with 500mg NAD infused over 2 – 4 hours daily for a 5 – 7 day period, or every other day over a 10 – 14 day period.



### **HOW DO I KNOW IF NAD+ IS RIGHT FOR ME?**

NAD+ IV therapy has generally been found to be safe for all adults. However, NAD+ IV therapy may interact with treatments for certain conditions or make those treatments less effective. ME Aesthetics aims to provide the safest care for all clients and will not provide NAD+ for:

- Clients with a history of cardiovascular disease, heart attacks, or arrhythmias
- Clients who are pregnant or breastfeeding
- Clients with kidney or liver disease
- Clients with bipolar diagnoses or those taking anti-psychotic classes of medications
- Clients who have been diagnosed with blood clots
- Clients currently receiving chemotherapy
- Clients with MTHFR gene mutation

### **WHAT IS THE DIFFERENCE BETWEEN NAD+ ORAL SUPPLEMENTS AND NAD+ IV THERAPY?**

Just like oral vitamin supplements, NAD+ oral supplements must go through the digestive process before reaching your cells. Absorption rates vary from person to person and can fluctuate based on your current state of health. This means that NAD+ levels will take a longer time to reach the desired levels, and the results will be less noticeable. Oral NAD+ supplements have become trendy and can be found all over the internet. As with all supplements, there is less rigorous oversight regarding the claims that companies make about what their product contains and can do for you.

### **WHAT'S THE DIFFERENCE BETWEEN A NAD+ IV TREATMENT AND A VITAMIN IV TREATMENT?**

Vitamins are micronutrients that our body needs in order to function from day-to-day. A balanced intake of vitamins is necessary for energy production, cognitive function, immunity, growth and development. Vitamins must be taken in daily through the foods we eat, supplements, and the occasional Vitamin IV infusion.

Like vitamins, NAD+ also plays a role in energy production, cognitive function, immune health, etc.. However, NAD+ is naturally made by your body and acts as a direct fuel source for the cellular activities that repair and protect cells from becoming damaged. Cellular damage is a normal, unavoidable part of the human life cycle. As we age NAD+ levels begin to drop which allows cells to become damaged more easily and stay damaged. It is at this point that the aging process manifests itself in aches, fatigue, and other degenerative symptoms.

### **IS NAD+ SAFE?**

NAD+ is still being studied for efficacy in the treatment and management of a variety of disease processes and for its role in slowing down the aging process and protecting cells from damage that leads to aging and disease. With that said, studies have shown that NAD+ IV therapy does not harm users and is considered very safe.

### **IS THERE A RECOVERY TIME REQUIRED AFTER A NAD+ IV TREATMENT?**

There is no required recovery time, though some clients report feeling tired immediately after their treatment before their energy levels increase. Clients can resume normal activities after their NAD+ IV therapy treatment!



NAD + Informed Consent

I, \_\_\_\_\_, hereby give my voluntary consent to receive intravenous (IV) nicotinamide adenine dinucleotide (NAD) followed by ME Aesthetics per the outlined protocol. The procedure is to be administered by Maria Espinel, APRN under the direct orders of Wilson DuMornay, Medical Director of ME Aesthetics.

NAD+ is a comprehensive amino acid, vitamin, and mineral treatment given for a variety of conditions. These amino acids, vitamins, and minerals are primarily administered through an IV over a 5 or 10-day period or a one-time treatment. Treatment is on an outpatient basis.

I FULLY UNDERSTAND AND AM FULLY AWARE THAT:

\_\_\_\_\_ The desired effect, improvement, or relief of any condition for which NAD+ is to be applied may or may not be attained. Moreover, NAD+ does not preclude the need for other forms of therapy and I assume full responsibility for the treatment of my condition by other physicians practicing standard medicine, as may be deemed necessary for my well-being.

\_\_\_\_\_ There may be complications resulting from this procedure which could include but are not limited to infection, nausea, vomiting, diarrhea, pain and discomfort, weakness, fainting, micro-hemorrhages, ecchymosis, embolism, allergic reactions, shock, IV fluid infiltration, swelling, needle breakage and its retention, death, and even aggravation of current symptoms. Most patients report mild symptoms during the administration of NAD and the vitamin mixture that are transient.

\_\_\_\_\_ No assurances or guarantees have been made, nor can any be made concerning the results that may be obtained, but the physicians and nurses who will provide the treatment which I will undergo will perform their services, and take such precautions that are consistent with the standards of care that prevail for the same type of treatment provided to patients with conditions similar to mine.

By signing this consent form I have not waived any of my legal rights or released this institution from liability for negligence. I also understand that I may revoke my consent at any time and withdraw from any further treatment without prejudice. My signature below confirms that:

1. I understand the information provided on this form and agree the procedure(s) set forth above have been adequately explained to me by my nurse/physician.
2. I have received all the information and explanation I desire concerning the procedure.
3. I certify that I am not pregnant during any current or future treatment.
2. 4. I certify that I am not intoxicated on alcohol or any illicit drugs during any future treatment.

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_