

IV NUTRITION & IRON INFUSION THERAPY

Evidence-Based Care for Your Overall Wellbeing

ENERGY

IMMUNITY

VITALITY

WELLNESS

Presented by Dr. John

Winny Lorn, NP, Medical Directorship

Invest in a Healthier You



OBJECTIVE

- | | |
|----|--|
| 01 | HISTORY |
| 02 | PHYSIOLOGY |
| 03 | EVIDENCE |
| 04 | PROTOCOLS |
| 05 | BENEFITS |
| 06 | RISKS AND SAFETY OF IV NUTRIENT & IRON THERAPIES |

DERMA CAPITAL LASER CLINIC.

Clinical education focused on responsible IV nutrient and iron infusion therapy.





PART I: IV NUTRIENT THERAPY

SCIENCE | SAFETY | RESULTS

WHAT IS IV NUTRIENT THERAPY?



Administration of vitamins, minerals, and micronutrients directly into bloodstream



Historically used in hospital medicine (TPN, ICU care)



Currently used in medically indicated deficiency states and parenteral nutrition



Distinct from oral supplementation due to pharmacokinetics

IV vs ORAL

The delivery route changes how nutrients enter and move through the body.



HISTORY & BACKGROUND



- 1832** First recorded IV infusion by Thomas Latta (saline for cholera)
- Mid-20th century** Routine use in surgery, trauma, critical care
- Later decades** Mineral & vitamin IV supplementation in parenteral nutrition
- Present** Medical use expands to functional & clinical deficiency correction

IV vitamins originated in hospital medicine, not wellness clinics.



PHYSIOLOGY & RATIONALE



**Bypasses
GI absorption
barriers**



**Improves
bioavailability
immediately**



**Useful when
oral route fails**
(malabsorption,
side effects)



**Achieves
therapeutic
levels quickly**



IV administration delivers nutrients directly into the bloodstream, bypassing gastrointestinal absorption barriers.



The IV route can be useful when the oral route is ineffective or poorly tolerated.

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PHARMACOKINETICS



01

ABSORPTION

100% into
bloodstream

02

DISTRIBUTION

Direct to tissues,
cells, organs

03

PEAK PLASMA LEVELS

Higher than oral

04

CLINICAL EFFECT

Rapid onset of
clinical effect

**RAPID RENAL CLEARANCE FOR
WATER-SOLUBLE VITAMINS**

CLINICAL IMPLICATION

**IV $\neq$ sustained effect
unless deficiency exists.**

KEY CLINICAL POINT

Rapid bloodstream availability does not
automatically mean a longer-lasting
clinical effect.

CLINICAL EVIDENCE

IV vitamin therapy enhances bioavailability & nutrient replenishment in specific conditions.

Evidence remains mixed; high-quality RCTs limited.

IV vitamins are scientifically justified when GI absorption is impaired or deficiencies severe.



To IV or Not to IV: The Science Behind Intravenous Vitamin Therapy

**Review | Cureus | 2025 Jun | 22;17(6):€86527 |
doi: 10.7759/cureus.86527**

Intravenous (IV) vitamin therapy has gained popularity in recent years, marketed for benefits such as increased energy, improved immunity, enhanced athletic performance, and detoxification. This review examines the scientific evidence underpinning IV vitamin therapy, focusing on its efficacy, safety, and clinical applications. While IV administration offers advantages in bioavailability and rapid delivery, particularly in cases of malabsorption or severe deficiency, robust evidence supporting its use in healthy individuals is limited. Potential risks, including allergic reactions, infections, and nutrient overload, underscore the need for cautious application. This review highlights the necessity for further well-designed randomized controlled trials to establish standardized protocols and validate claims.

WHAT THE EVIDENCE ACTUALLY SUPPORTS



SUPPORTED WHEN

- Severe or documented deficiencies
- Malabsorption syndromes
- Critical illness
- Total parenteral nutrition

EVIDENCE LIMITED OR INCONCLUSIVE FOR

- General wellness
- Anti-aging
- Athletic performance in healthy individuals

Clinical evidence should guide patient selection, indications, and treatment decisions.



KEY PUBMED REVIEW: IV VITAMINS (CRITICAL REVIEW)



**Strong evidence for IV vitamins in
hospitalized & deficient patients**

**Limited high-quality RCTs
for outpatient wellness use**

**Calls for clearer patient
selection and indications**

Alangari AA et al. Intravenous vitamin therapy: A review of evidence.
PMID: 40548149.

INDICATIONS FOR NUTRITIONAL IV'S

- ALLERGIC RHINITIS
- ASTHMA
- BACTERIAL ILLNESSES
- CHEMICAL TOXICITY
(ALCOHOL, STRESS,
NUTRITIONAL...)
- CHRONIC FATIGUE SYNDROME
- IMMUNE DISORDERS
- MIGRAINE
- MUSCLE SPASMS
- VIRAL ILLNESSES
- AUTOIMMUNE DISORDERS

Source content retained from the supplied educational material.

WHY NUTRITIONAL IV'S?

MANY PATIENTS HAVE INADEQUATE NUTRITIONAL INTAKE DUE TO:

- **ACHLORHYDRIA**
- **FOOD ALLERGIES OR INTOLERANCE**
- **SURGERY**
- **CHOLECYSTECTOMY**
- **GASTRIC BYPASS**
- **LAP BAND**
- **INFLAMMATION**
- **GASTRITIS**
- **CROHN'S DISEASE**
- **CHRONIC USE OF NSAID'S**
- **INTESTINAL DYSBIOSIS**
- **POOR DIET**



NUTRITIONAL INTAKE

The source material identifies several gastrointestinal, dietary and surgical factors associated with inadequate nutritional intake.

WHY NUTRITIONAL IV'S?



**IMPOSSIBLE TO OBTAIN IV SERUM
NUTRIENT LEVELS WITH ORAL
AND/OR IM ADMINISTRATION**



**INCREASING ORAL VITAMIN C FROM
200MG TO 2,500MG INCREASED THE
PLASMA STEADY STATE CONCENTRATION
FROM 1.2 TO 1.5MG/DL.**

VITAMIN C – SOURCE COMPARISON

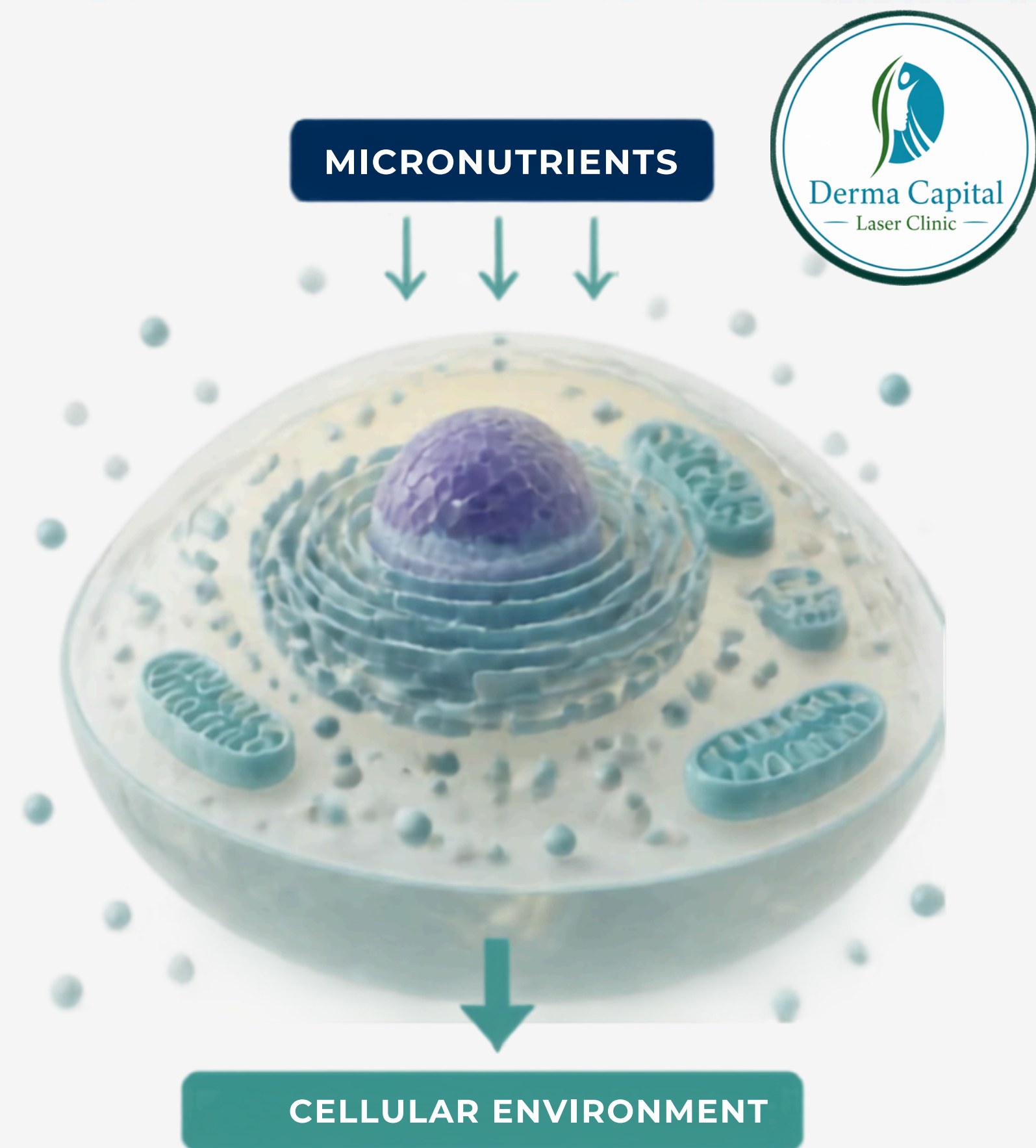
ORAL DOSE	PLASMA STEADY-STATE CONCENTRATION
200 MG	1.2 MG/DL
2,500 MG	1.5 MG/DL

NUTRIENT DEPLETION

MICRONUTRIENT DEPLETION IS COMMON

- POOR FARMING
- SOIL MINERAL CONTENT DECLINING
- TOXIC CHEMICALS APPLIED TO SOIL

→ INTRACELLULAR NUTRIENT DEPLETION IS COMMON



BENEFITS



1

INSTANT RELIEF FROM
HANGOVERS OR
STOMACH FLU.

2

IMMUNITY BOOST FOR
TRAVELERS AND RELIEF
FROM JET LAG.

3

HYDRATION FOR
INDIVIDUALS WHO
STRUGGLE TO DRINK
ENOUGH WATER.

4

INCREASED ENERGY AND
MENTAL CLARITY.

5

ANTI-AGING BENEFITS
FOR SKIN ELASTICITY
AND OVERALL BEAUTY
ENHANCEMENT.

6

FASTER RECOVERY AND
INCREASED ENERGY FOR
ATHLETES.

Benefit statements reproduced from the supplied source material.

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DELIVERY MECHANISMS OF IV THERAPY

1 DRIP INFUSION

USES GRAVITY TO CARRY FLUIDS THROUGH THE TUBE INTO THE BLOODSTREAM.



BOLUS (PUSH) INFUSION

A MOTORIZED PUMP ENSURES A CONSTANT FLOW OF FLUIDS.



The supplied source distinguishes the two delivery mechanisms above.

OSMOLARITY

- MEASURE OF THE SOLUTE CONCENTRATION
- NUMBER OF OSMOLES OF SOLUTE PER LITER



**DO NOT USE
HYPOSMOLAR
SOLUTIONS!!
EVER!!!**

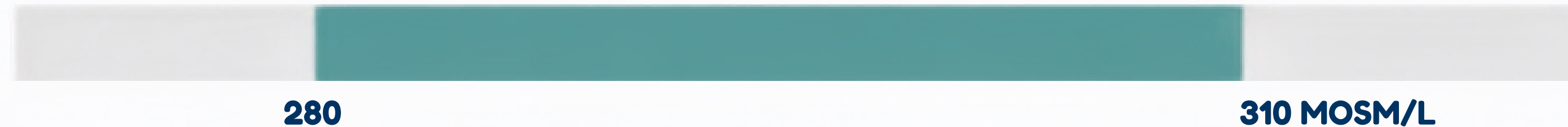
HEMOLYSIS



**IDEALLY, EVERY
INJECTION SHOULD BE
ISO-OSMOLAR**

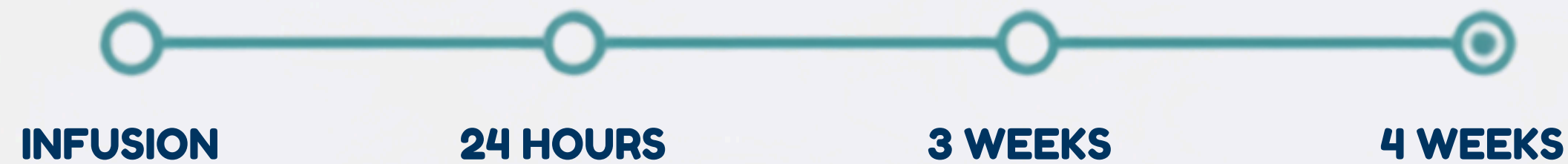
- 280-310 MILLIOSMOLES/L
- BETTER TO ERR ON THE HIGHER SIDE
- HYPEROSMOLAR SOLUTIONS ARE GENERALLY NOT A PROBLEM

OSMOLARITY RANGE



DURATION OF EFFECTS

- Effects vary based on formulation, dose, and frequency
- Influenced by individual metabolism, lifestyle, and baseline deficiencies
- Many patients notice benefits within 24 hours of infusion
- Clinical effects may last up to 3-4 weeks



Duration depends on the formulation, dose, frequency, and individual factors described above.

ESSENTIAL INGREDIENTS USED IN IV THERAPY



VITAMIN C

BOOSTS IMMUNE FUNCTION, FIGHTS FATIGUE, AND SUPPORTS DETOXIFICATION.



GLUTATHIONE

PROVIDES SKIN BRIGHTENING, ANTI-AGING, AND IMMUNE SYSTEM SUPPORT.



B-COMPLEX VITAMINS

SUPPORTS ENERGY PRODUCTION, IMMUNE FUNCTION, AND STRESS REGULATION.



BIOTIN (VITAMIN B7)

ESSENTIAL FOR METABOLISM, SKIN, AND HAIR HEALTH.



CYANOCOBALAMIN (VITAMIN B12)

SUPPORTS NERVE FUNCTION, PREVENTS ANEMIA, AND PROMOTES COGNITIVE HEALTH.



AMINO ACIDS

CRUCIAL FOR IMMUNE FUNCTION, MUSCLE RECOVERY, AND METABOLISM.



MAGNESIUM

AIDS BONE HEALTH, MUSCLE FUNCTION, AND HEART HEALTH.



TAURINE

SUPPORTS MENTAL HEALTH, MEMORY, AND LEARNING ABILITIES.



NAD (NICOTINAMIDE ADENINE DINUCLEOTIDE)

SUPPORTS BRAIN FUNCTION, CIRCADIAN RHYTHM, AND CELLULAR ENERGY.



IRON INFUSION

TREATS SEVERE ANEMIA AND ENSURES PROPER OXYGEN TRANSPORT IN THE BODY.

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MYERS' COCKTAIL

DR. JOHN MYERS

BALTIMORE, MD

1970'S DEVELOPED A NUTRITIONAL IV PROTOCOL:

MEYER'S IV PROTOCOL



DR. JOHN MYERS



BALTIMORE, MD



1970'S

INGREDIENTS OF MYERS' COCKTAIL

DR. JOHN MYERS

BALTIMORE, MD

1970'S DEVELOPED A NUTRITIONAL IV PROTOCOL:

MEYER'S IV PROTOCOL



B-VITAMINS, VITAMIN C,
CALCIUM PANTOTHENATE, VITAMIN B6,
THIAMINE, MAGNESIUM CHLORIDE,
AND/OR CALCIUM GLUCONATE



**MYERS'
COCKTAIL**

NUTRITIONAL
IV PROTOCOL

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BENEFITS OF MYERS' COCKTAIL IV THERAPY



TREATS FATIGUE, MIGRAINES, ASTHMA, MUSCLE SPASMS, ALLERGIES, SINUS INFECTIONS, DEPRESSION, CHRONIC STRESS, AND CARDIOVASCULAR DISEASES.



ADMINISTRATION & SAFETY

TAKES 30–90 MINUTES FOR INFUSION.

SIDE EFFECTS INCLUDE MILD DISCOMFORT, DIZZINESS, OR FLUSHING.

FIRST-TIME USERS MAY RECEIVE A LOWER DOSE TO MONITOR REACTIONS.



PATIENT-SAFETY NOTE

Administration time, dose selection and monitoring should be individualized by the treating clinical professional.



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ESSENTIAL INGREDIENT FOR IV THERAPY: VITAMIN C

- ✓ Vitamin C can be obtained through diet, but IV administration is more effective
- ✓ IV vitamin C allows faster and higher absorption than oral intake
- ✓ Oral vitamin C has absorption limits; IV bypasses the digestive system
- ✓ Vitamin C deficiency may cause fatigue, weakness, and reduced immune function
- ✓ Low vitamin C levels are associated with increased risk of heart disease and stroke

VITAMIN C – IV VS ORAL



The supplied material emphasizes the difference in delivery route and absorption between oral and intravenous administration.



GLUTATHIONE

A TRIPEPTIDE FOUND IN RELATIVELY HIGH CONCENTRATIONS IN MANY BODILY TISSUES



skin-brightening effects - the POWER ANTIOXIDANT



Inhibits melanin production → helps reduce pigmentation and promote an even, radiant complexion



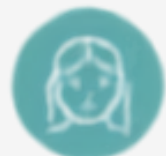
IV delivery provides higher bioavailability than oral supplements and bypasses digestion



Supports detoxification by protecting against DNA damage and aiding heavy metal removal



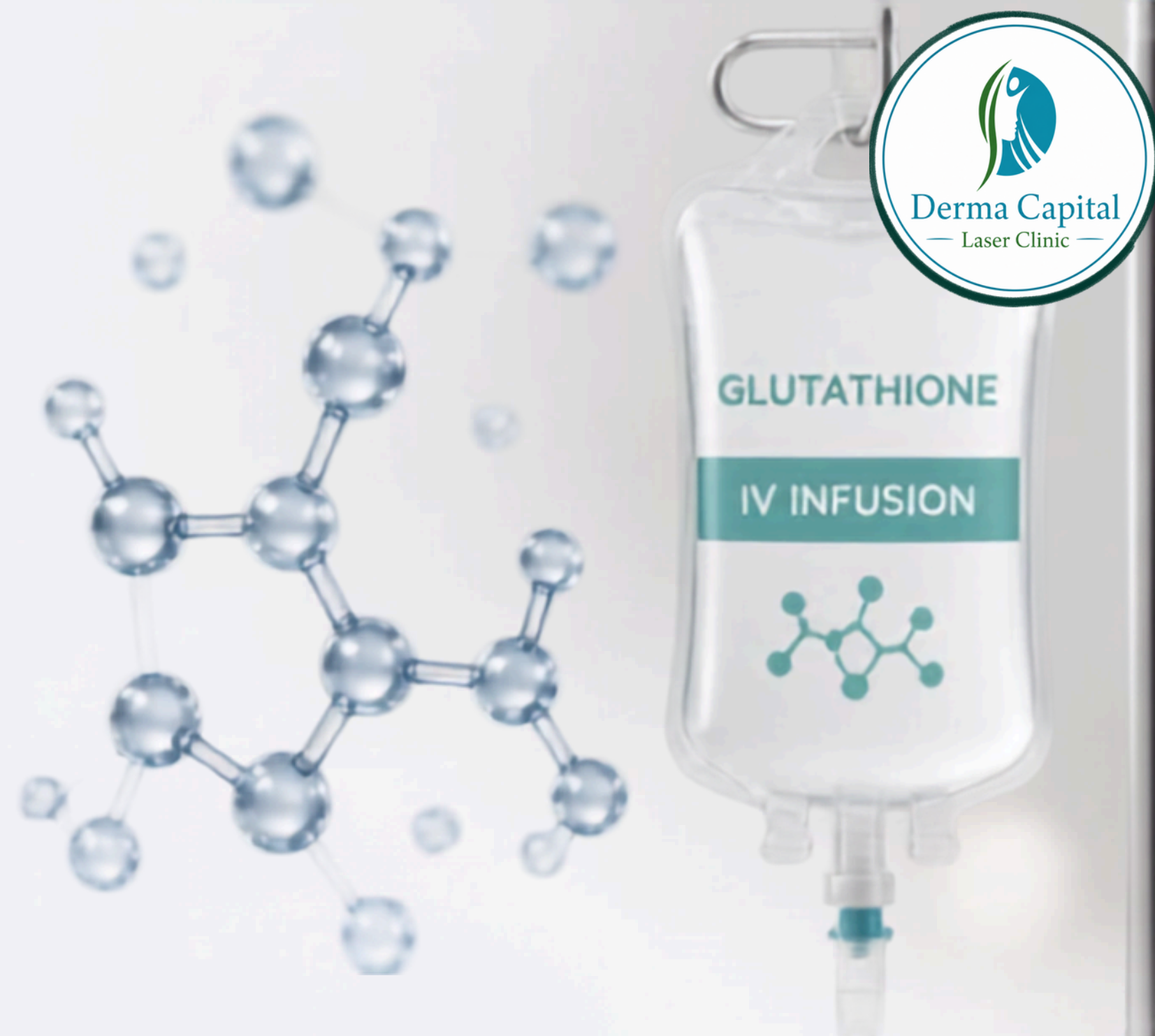
Plays an important role in immune system support



Anti-aging benefits: helps slow cellular aging and reduce fine lines and wrinkles



May improve skin concerns such as acne, rosacea, and hyperpigmentation



POTENTIAL ADVERSE EFFECTS WITH OVERLOAD

abdominal cramps, bloating, allergic reactions, bronchial constriction

B-COMPLEX



Essential for energy production, muscle function, and stress response



Help regulate blood sugar, support immune health, digestion, and healthy skin & hair



Key B vitamins: B1 (Thiamine), B2 (Riboflavin), B3 (Niacin), B5 (Pantothenic acid), B6, B7 (Biotin), B9 (Folate), B12



Water-soluble vitamins found in meats, eggs, vegetables, and grains



Supplementation may support cognitive function, mood, and energy levels



Benign effect: B-complex may cause bright yellow urine



SAFETY CONSIDERATIONS



Vitamin B3 excess →
flushing, vomiting,
elevated blood sugar,
liver damage



Vitamin B6 excess →
nerve damage, painful
skin lesions, light
sensitivity



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NAD⁺

NICOTINAMIDE ADENINE DINUCLEOTIDE



PART OF THE B-VITAMIN FAMILY (DERIVED FROM VITAMIN B3); WATER-SOLUBLE AND ESSENTIAL FOR CELLULAR HEALTH



CRITICAL FOR CELLULAR ENERGY PRODUCTION (ATP) AND OVERALL METABOLIC FUNCTION



REGULATES CIRCADIAN RHYTHM, INFLUENCING SLEEP, MOOD, HORMONE BALANCE, BRAIN FUNCTION, AND ENERGY LEVELS



NATURALLY PRODUCED IN THE BODY FROM NICOTINAMIDE/NIACIN; LEVELS DECLINE WITH AGE

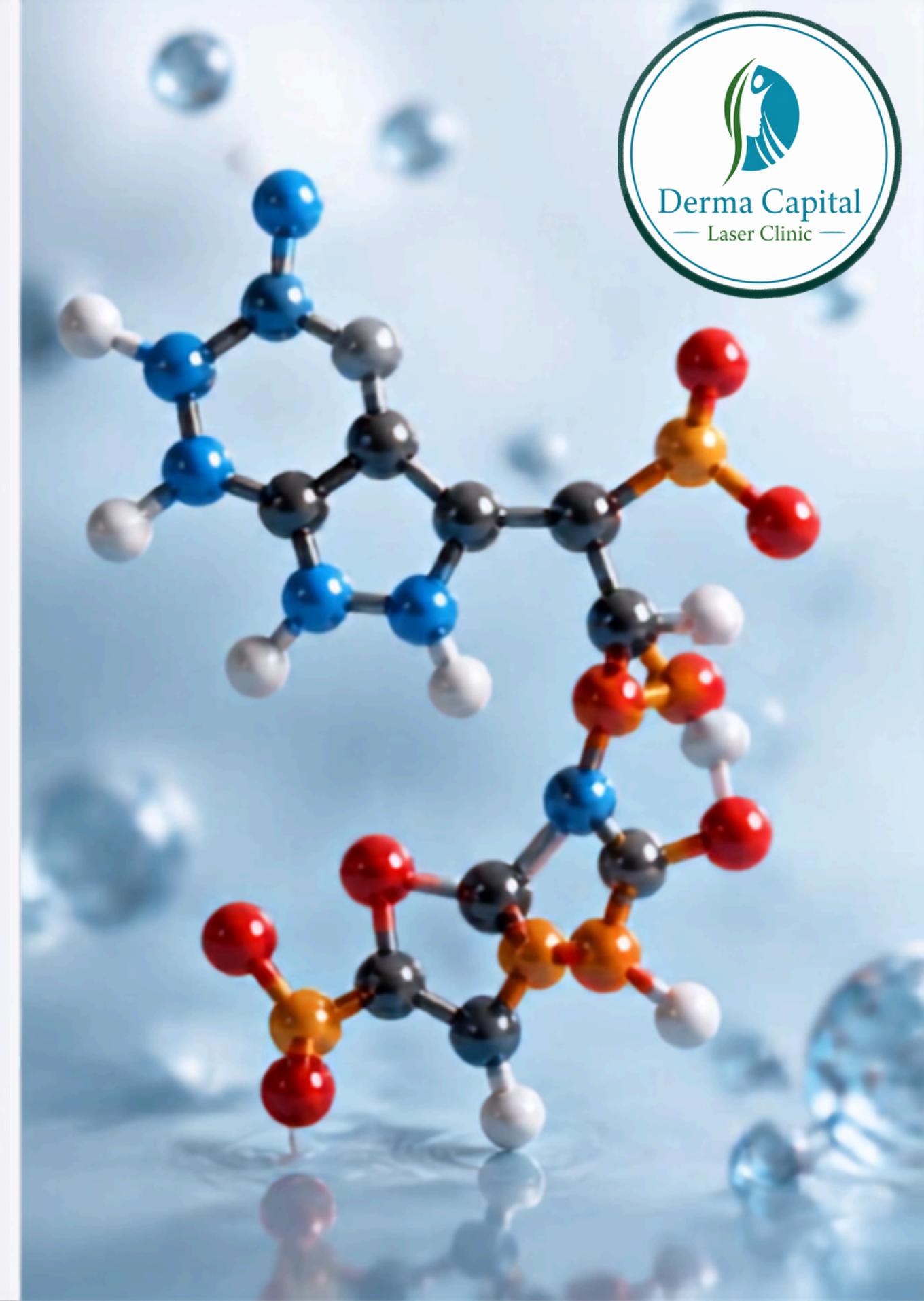


SOME INDIVIDUALS MAY HAVE DEFICIENCIES DUE TO POOR ABSORPTION OR IMPAIRED ENZYME CONVERSION



CELLULAR ROLE

The source material describes NAD⁺ as central to cellular energy and metabolic processes.



ANTI-AGING & LONGEVITY BENEFITS OF NAD⁺



Supports DNA repair and cellular regeneration



Activates sirtuins (“longevity genes”) associated with slower cellular aging



Improves mitochondrial function → increased energy and reduced fatigue



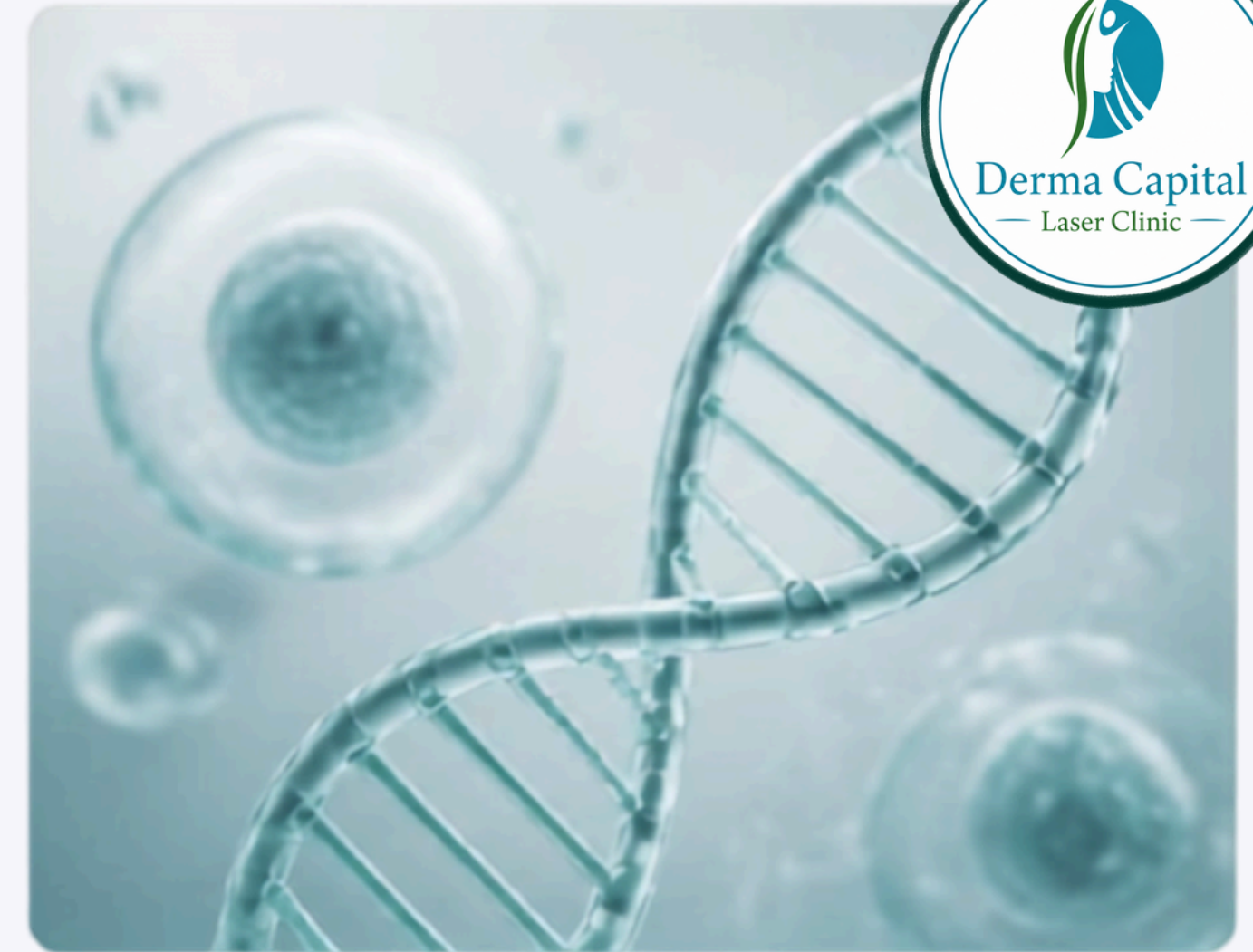
Helps reduce oxidative stress and inflammation



May support cognitive function, focus, and neuroprotection



Associated with improved skin vitality and slowed appearance of aging



CLINICAL CONTEXT

These benefit statements are presented as claims from the supplied educational material; evidence and individual response can vary.

IV THERAPY COMPLICATIONS



- 1 INFILTRATION – FLUID LEAKS INTO SURROUNDING TISSUES DUE TO IMPROPER NEEDLE PLACEMENT.
- 2 HEMATOMA – BLOOD LEAKAGE CAUSING SWELLING AND BRUISING.
- 3 PHLEBITIS & THROMBOPHLEBITIS – VEIN INFLAMMATION DUE TO IV IRRITATION.
- 4 EXTRAVASCULAR INJECTION – MISPLACED INJECTIONS CAUSING PAIN AND TISSUE DAMAGE.
- 5 INTRAARTERIAL INJECTION – A RARE BUT SERIOUS ISSUE THAT CAN CAUSE SEVERE COMPLICATIONS.
- 6 AIR EMBOLISM – LARGE AIR BUBBLES IN IV TUBING MAY BE DANGEROUS.



VITAMIN OVERLOAD RISKS



RISKS IDENTIFIED IN THE SOURCE MATERIAL

- IRON OVERLOAD - ORGAN DAMAGE.
- GLUTATHIONE OVERLOAD - CRAMPS, ALLERGIES, BLOATING, BRONCHIAL CONSTRICTION.
- B-VITAMIN OVERLOAD: B3 (NIACINAMIDE) - SKIN FLUSHING, VOMITING, LIVER DAMAGE.
- B6 - NERVE DAMAGE, SKIN LESIONS, LIGHT SENSITIVITY.
- BRIGHT YELLOW URINE - A HARMLESS BUT NOTICEABLE EFFECT.



FREQUENT USE

FREQUENT USE OF IVT MAY CAUSE CRITICAL NUTRIENT IMBALANCES, NEGATIVE INTERACTIONS WITH MEDICATIONS, AND/OR INCREASED RISK OF INFECTION.

HOW CAN WE DISCUSS BENEFITS IF THERE ARE LIMITED RCTS FOR "WELLNESS" IV THERAPY?



First, it's important to understand that absence of large randomized controlled trials (RCTs) does not equal absence of **biological effect**.

RCTs are expensive, time-consuming, and usually funded when there is:



A patentable drug



A strong commercial incentive



A disease-based indication

WHY LARGE WELLNESS RCTS MAY BE LIMITED

Most IV nutrients are naturally occurring, non-patentable molecules, so there is little financial incentive to fund large wellness-based RCTs.



This page preserves the argument presented in the supplied source material; it should be considered alongside the broader clinical evidence and current medical guidance.

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WHAT WE DO HAVE INSTEAD

WELL-ESTABLISHED HUMAN PHYSIOLOGY



Vitamins, minerals, amino acids, and cofactors are essential for cellular function



Their roles in metabolism, immunity, neurotransmission, mitochondrial energy, and antioxidant defense are already well documented



Deficiency states clearly cause dysfunction → repletion restores function



CLINICAL PRINCIPLE

Nutrient deficiencies can impair normal, physiological function; correction of an identified deficiency is intended to restore adequate nutrient availability.



This page preserves the argument presented in the supplied source material; it should be considered alongside the broader clinical evidence and current medical guidance.

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HOW WE SPEAK ABOUT BENEFITS RESPONSIBLY



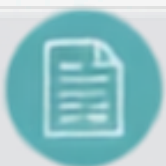
WE DO NOT CLAIM CURES OR GUARANTEED OUTCOMES.

- ✓ Supports
- ✓ May help
- ✓ Plays a role in
- ✓ Used as an adjunctive therapy
- ✓ Based on known physiology and clinical experience



RESPONSIBLE COMMUNICATION

This keeps communication ethical, accurate, and defensible.



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EMERGENCY EQUIPMENT TO HAVE ON HAND



OXYGEN



EPINEPHRINE



STEROIDS



ENSURE UP TO DATE TRAINING IN CPR



NEVER SHY AWAY FROM CALLING



Emergency escalation and appropriate emergency response **should** be initiated whenever clinically indicated.





PART II: IRON INFUSION THERAPY

SCIENCE | SAFETY | CLINICAL ASSESSMENT

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EPIDEMIOLOGY & PREVALENCE



**1 IN 3 WOMEN
WORLDWIDE ARE IRON DEFICIENT.**



**40% OF MENSTRUATING WOMEN
ARE IRON DEFICIENT.**



**90% OF PREGNANT WOMEN
ARE IRON DEFICIENT.**



**WOMEN WITH HEAVY PERIODS ARE
2X AS LIKELY TO BE LOW IN IRON.**



CLINICAL CONTEXT

Iron status varies
by population and
clinical context;
assessment should
be individualized.



This page preserves the argument presented in the supplied source material; it should be considered alongside the broader clinical evidence and current medical guidance.

INDICATIONS & DIAGNOSTIC CRITERIA



FERRITIN <30 NG/ ML $\rightarrow$ IRON DEFICIENCY.



FERRITIN 30–50 + ESR >5 OR CRP 5 $\rightarrow$ FUNCTIONAL DEFICIENCY.



TSAT $<25\%$. (TRANSFERRIN SATURATION)



POOR RESPONSE TO ORAL IRON AFTER 3 MONTHS.



**INTOLERANCE TO ORAL IRON.
(DUE TO GI SE AND ALLERGY)**



MALABSORPTION (CELIAC, IBD, BARIATRIC SURGERY).



These diagnostic thresholds are reproduced from the supplied educational source and should be applied according to the clinician's current protocols and applicable guidance.

BLOODWORK INTERPRETATION



FERRITIN (2024 GUIDELINES): BEST STORAGE MARKER (LOW = DEFICIENCY; MAY ∇ IN INFLAMMATION).



FERRITIN IS AN ACUTE PHASE REACTANT AND RISE IN PRESENCE OF INFLAMMATION



TSAT $<20\%$: FUNCTIONAL OR ABSOLUTE DEFICIENCY. (TSSTAT OF <0.25 (25%) IS A BETTER STARTING POINT



HEMOGLOBIN CUTOFFS: <130 G/L MEN, <120 G/L WOMEN, <110 G/L PREGNANCY.



PLATELETS: MAY ∇ IN DEFICIENCY (REACTIVE THROMBOCYTOSIS). THEY ALSO INCREASE ∇ WITH INFLAMMATION OR ACUTE INFECTION



BOTTOM LINE

Always run Ferritin, ESR, CRP, TSTAT and Platelets

CONTRAINDICATIONS



KNOWN HYPERSENSITIVITY TO IV IRON.



ACUTE INFECTION.

IRON IS A NUTRIENT FOR PATHOGENS
MAY FUEL MICROBIAL GROWTH.



**IRON OVERLOAD /
HEMOTHEMATOSIS.**



**ACTIVE SYSTEMIC LUPUS
ERYTHEMATOSUS (SLE).**

RISK OF HYPERSENSITIVITY IS ALSO
HIGHER IN AUTOIMMUNE PATIENTS.



**FIRST TRIMESTER
OF PREGNANCY.**



**DECOMPENSATED
LIVER DISEASE.**

THE LIVER IS A MAJOR IRON
STORAGE ORGAN, ALWAYS
CHECK ALT AND AST



**UNCONTROLLED
ASTHMA/ECZEMA (RELATIVE
CONTRAINDICATION).**

- HIGHER RISK OF HYPERSENSITIVITY IF ASTHMA IS DUE TO ALLERGENS THEN IRON CAN CAUSE BRONCHOSPASM OR ANAPHYLAXIS
- ALWAYS TREAT ASTHMA AND ASTHMA PATIENTS WITH ANTIHISTAMINE LIKE REACTINE

IV IRON PRODUCTS & DOSING

VENOFER (IRON SUCROSE)



- **NON-DIALYSIS CKD: MAX 500 MG.**
- **OTHER PATIENTS: MAX 300 MG/DOSE.**
- **UP TO 1000 MG IN 14 DAYS.**
- **DILUTE: 1-2 ML/ML NS, INFUSE ≥ 30 MIN PER 100 MG.**
- **≥ 300 MG MUST BE IN 250 ML NS.**
- **FOR VENOFER YOU CAN USE THIS TABLE TO FIND THE DOSE BUT TREATMENT MUST BE IN 3-5 SESSIONS**



CLINICAL SAFETY

Dosing and administration information on this page is reproduced from the supplied educational source. Verify the current product monograph, prescribing requirements, patient-specific labs, and clinic protocol before use.



SIMPLIFIED DOSE CALCULATION IN IDA



Recommended Total Iron Sucrose Dose (mg)
Desired Hgb Change (g/dl) = Target Hgb - current Hgb

Body weight	1	2	3	4	5	6	7
40	600 mg	700 mg	800 mg	900 mg	1000 mg	1100 mg	1300 mg
45	600 mg	700 mg	800 mg	900 mg	1000 mg	1100 mg	1400 mg
50	600 mg	700 mg	900 mg	1000 mg	1100 mg	1200 mg	1500 mg
55	600 mg	800 mg	900 mg	1000 mg	1200 mg	1300 mg	1600 mg
60	600 mg	800 mg	900 mg	1100 mg	1200 mg	1400 mg	1700 mg
65	700 mg	800 mg	1000 mg	1100 mg	1300 mg	1400 mg	1700 mg
70	700 mg	800 mg	1000 mg	1200 mg	1300 mg	1500 mg	1800 mg
75	700 mg	900 mg	1000 mg	1200 mg	1400 mg	1600 mg	1900 mg
80	700 mg	900 mg	1100 mg	1300 mg	1500 mg	1700 mg	2000 mg
85	700 mg	900 mg	1100 mg	1300 mg	1500 mg	1700 mg	2100 mg
90	700 mg	900 mg	1100 mg	1400 mg	1600 mg	1800 mg	2200 mg
95	700 mg	1000 mg	1200 mg	1400 mg	1600 mg	1900 mg	2300 mg
100	700 mg	1000 mg	1200 mg	1500 mg	1700 mg	1900 mg	2400 mg



Source table reproduced in a searchable, editable-text layout. Confirm dosing against the current approved product information and clinician-directed protocol before administration.



MONOFERRIC (FERRIC DERISOMALTOSE)



MAX SINGLE DOSE = 20 MG/KG OR 1500 MG (WHICHEVER LOWER).



IF >1500 MG REQUIRED → SPLIT DOSES ←1 WEEK APART.



DILUTION: 1–2 ML/ ML NS.



INFUSE SLOWLY (AVOID <1 MG/ ML TO PREVENT DESTABILIZATION).



CONCENTRATION OF LESS THAN 1MG/ ML DESTABILIZE IRON AND CAN CAUSE ANAPHYLACTIC RESPONSE → 2MG/ ML IS BETTER

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DOSING IRON ORAL VS IV



Parameter	Oral Iron	IV Iron
Dose	60–90 mg daily	Individualized (Ganzoni)
Duration	≥3 months	Often single treatment
Ferritin rise	10–15 pts/month (75 mg dose)	15–20 pts/100 mg infused
Cost	~\$20/month	~\$800–850/1000 mg
SE	GI side effects common	Hypersensitivity rare but serious



ADMINISTRATION & INFUSION PROTOCOL



INFUSION SPEED & MONITORING

- START <50% OF RECOMMENDED RATE (E.G., 1 DROP EVERY 2 SEC ×15 MIN).
- MOST REACTIONS OCCUR IN THE FIRST 10 MINUTES.
- IF TOLERATED, INCREASE RATE GRADUALLY.
- AVERAGE DRIP: 50–60 GTT/MIN (-1.5 HR).
- MONITOR PATIENT VITALS EVERY 10 MIN AT FIRST AND THEN EVERY 15 MINUTES
- REMEMBER MORE RAPID INFUSION RATES INCREASE THE RISK OF HYPERSENSITIVITY REACTION; HYPOTHESIZED TO BE RELATED TO ACTIVATION OF THE COMPLEMENT SYSTEM



MONITORING

Start cautiously,
increase the rate only if
tolerated, and monitor
vital signs throughout
the infusion.

POST-INFUSION MONITORING



OBSERVE 15–30 MIN, DOCUMENT VITALS.



IF PATIENT LEAVE RIGHT IN YOUR CHART PATIENT WAS OBSERVED AND VITALS ARE GOOD



FOLLOW-UP LABS AT 4–6 WEEKS: CBC, FERRITIN, ESR/CRP, TRANSFERRIN SATURATION, PHOSPHATE, VITAMIN D.



RECHECK IN 3–6 MONTHS.



PROVIDE PATIENTS WITH WHAT TO EXPECT AND HOW TO MANAGE



EXPECTED RESPONSE IS 15–20 POINT INCREASE IN FERRITIN FOR EVERY 100 MG INFUSED



LEVEL OF RETENTION DEPENDS ON THEIR LEVEL OF INTAKE AND LOSS



SIDE EFFECTS & ADVERSE REACTIONS



COMMON REACTIONS (GENERALLY MILD)

-  **IV SITE IRRITATION.**
-  **NAUSEA, DIARRHEA.**
-  **URTICARIA (HIVES).**
-  **HYPOTENSION.**
-  **HEADACHE.**
-  **MUSCLE CRAMPS.**

AVOIDING EXTRAVASATION ("IRON TATTOO")



- ✓ **USE LARGE, STABLE VEINS (AVOID FLEXION POINTS).**
- ✓ **RISK FACTORS - POOR IV ACCESS, FRAGILE VEINS, USING TOO SMALL A VEIN, INFUSION WITHOUT PROPER VEIN STABILIZATION, HIGH INFUSION & EXTRAVASATION RATE**
- ✓ **MINIMIZE ACCESS ATTEMPTS (STOP AFTER 3 ATTEMPTS)**
- ✓ **IF NO CHOICE BUT FLEXION POINTS BOARD THE PATIENT**
- ✓ **ALWAYS USE MICROCLAVE OR NEXIVA TO BE ABLE TO CHANGE THE LINE**
- ✓ **ALWAYS USE ANGIOCATHETER, NOT BUTTERFLY.**
- ✓ **SECURE LINE, CONFIRM PATENCY, PRIME WITH SALINE BEFORE AND AFTER IV INFUSION.**
- ✓ **PRIME WITH SALINE 10 ML PREFILLED NS 9%, DISCARD 5 ML BEFORE PRIMING, ASPIRATE BLOOD AND THEN FLUSH WITH 3-5 ML NS**
- ✓ **NOW ATTACH IV LINE AND INFUSE**
- ✓ **STOP IMMEDIATELY IF SWELLING OR PAIN.**



SERIOUS SIDE EFFECTS OF IRON INFUSION



A RARE BUT SERIOUS COMPLICATION: IRON TOXICITY. THE SYMPTOMS OF IRON TOXICITY CAN DEVELOP QUICKLY, POTENTIALLY LEADING TO ANAPHYLACTIC SHOCK, OR THEY MAY PROGRESS GRADUALLY OVER TIME.



TO PREVENT THIS COMPLICATION, ALWAYS ADMINISTER A TEST DOSE AND USE A SLOW INFUSION RATE. THE TEST DOSE IS ESPECIALLY IMPORTANT IF THE PATIENT HAS A HISTORY OF MULTIPLE DRUG ALLERGIES.

POSSIBLE REACTIONS TO IRON INFUSIONS MAY INCLUDE:



ANAPHYLAXIS



SHOCK



SEVERE HYPOTENSION



COLLAPSE



LOSS OF CONSCIOUSNESS



IRON OVERLOAD - CAN CAUSE DAMAGE TO MULTIPLE ORGANS AND BODY SYSTEMS.



IMPORTANT



PATIENTS SHOULD BE OBSERVED THROUGHOUT THEIR IRON INFUSION TREATMENT MORE FREQUENTLY THAN OTHER INFUSIONS TO ENSURE ANY INFILTRATION THAT OCCURS IS RAPIDLY MANAGED.



THEY SHOULD ALSO BE ADVISED TO IMMEDIATELY NOTIFY STAFF IF THEY NOTICE: PAIN, SWELLING, SORENESS AT THE INJECTION SITE OR THERE IS ANY OBVIOUS SWELLING OR DISCOLORATION.



ANAPHYLAXIS



INCIDENCE: ~1 IN 200,000.

**OFTEN DUE TO RAPID INFUSION
OR OVERLY DILUTED SOLUTION.**

ALGORITHM: WHEN IN DOUBT TREAT

- ✓ **STOP INFUSION IMMEDIATELY.**
- ✓ **SWITCH TO NS 0.9%.**
- ✓ **MAINTAIN SBP >90 MMHG.**
- ✓ **KVO = KEEP VEIN OPEN**
- ✓ **IF RAPIDLY PROGRESSING →
EPINEPHRINE IM 0.3–0.5 MG (1:1000).**
- ✓ **IF NO RESPONSE AFTER 5
MIN ADMINISTER AGAIN**

SECOND-LINE:



**DIPHENHYDRAMINE IV
(25–50 MG IN 10 ML NS
OVER 5–10 MIN PUSH).**



**HYDROCORTISONE 200 MG
IV. (GLUCOCORTICOID)**



**SALBUTAMOL NEBULIZER (2.5–5
MG/3 ML.), ANY BETA 2
ADRENERGIC AGONIST AS PUFFER
OR NEBULIZE WORKS**



OXYGEN TO MAINTAIN SPO₂ >90%.



ALWAYS CALL EMS.

HYPOPHOSPHATEMIA

- ✓ **MOST COMMON WITH MONOFERRIC.**
- ✓ **RISK FACTORS: VITAMIN D DEFICIENCY, LOW CA/PO_4 , ↑ PTH.**
- ✓ **EVALUATE AND CORRECT BEFORE IV**
- ✓ **SYMPTOMS: FATIGUE, ARTHRALGIA.**
- ✓ **USUALLY MILD → MONITOR & EDUCATE PATIENT.**



CLINICAL MONITORING

Assess relevant risk factors
before treatment and
monitor patients
appropriately after infusion.



FISHBANE REACTION



- ✓ **TRANSIENT LAST 1-2 MIN, COMMON, NON LIFE THREATENING REACTION**
- ✓ **FACIAL FLUSH, TRUNCAL MYALGIA, CHEST TIGHTNESS, JOINT PAIN.**
- ✓ **OCCURS IN ~2% OF PATIENTS.**
- ✓ **DISTINGUISHING FEATURES: NO HYPOTENSION -VITALS DO NOT CHANGE, MUCOSAL INVOLVEMENT NO ANGIOEDEMA OR PERIORBITAL EDEMA), OR MULTI-ORGAN SIGNS (HYPERSENSITIVITY HAS 2-OR MORE ORGANS INVOLVED).**
- ✓ **MANAGEMENT: STOP INFUSION BRIEFLY → RESTART. NO ANTIHISTAMINES REQUIRED.**
- ✓ **IT HAPPENS 2% OF THE TIME AND IF IT HAPPENS ONCE DOES NOT MEAN IT WILL HAPPEN AGAIN**



FISHBANE REACTION

is a transient, non-life threatening reaction that occurs in ~2% of patients and can be managed by briefly stopping and restarting the infusion.



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