



MedMasters
MASTER THE ART OF HEALING

Glutathione for Regeneration

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KIM LOOK

- I know what it's like to have lots of knowledge and services but unable to pull them together for best utilization.
- I have grown new and old practices selling millions of dollars in medical services.
- Want to promote safe and effective therapies via great education and practical hands-on learning.
- Personally “sold” and administered over 25K IVs



Reasons for Training



- Protect the patient
- Protect the providers
- Protect the medicine

- Physiological understanding of therapies
- Calculating doses
- Accuracy and safety
- Competence and confidence
- Liability
- Malpractice
- Trouble shooting and critical thinking
- A+ Skills

Guaranteed Total Implementation Success



Goals



1. Expand your knowledge
2. Point you in the right direction to learn more
3. Help more patients

It is our mission to help you!

Glutathione in Asian Culture for Aesthetics



- Lighter skin tone has been a coveted ideal stemming from its association with higher social status and beauty.
- Become a popular supplement and ingredient in skincare products
- Potential to inhibit melanin production – leading to lighter and more even skin.
- Clinical studies with limited sample sizes have reported some positive results for skin lightening with topical or oral glutathione use.

(<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5413479/>)



GLUTATHIONE BENEFITS

- Increases **energy**
- Slows down the **aging process**
- Reduces **muscle & joint discomfort**
- Strengthens **immune system**
- Detoxifies the **liver & cells**
- Improves **mental focus & clarity**
- Improves **quality of sleep**
- Reduces the **effects of stress**
- Improves the **skin**
- Athletic **performance & recovery**



More realistic aesthetic benefit



- Possibly most potent antioxidant
- Directly reducing free radicals and protecting cells from damage
- Also participates in the recycling of other antioxidants like Vit C and E
- Supports Phase II detoxification by aiding in conjugation of harmful molecules for excretion
- “Crucial player in maintaining healthy skin AND overall well-being”

What is Glutathione?

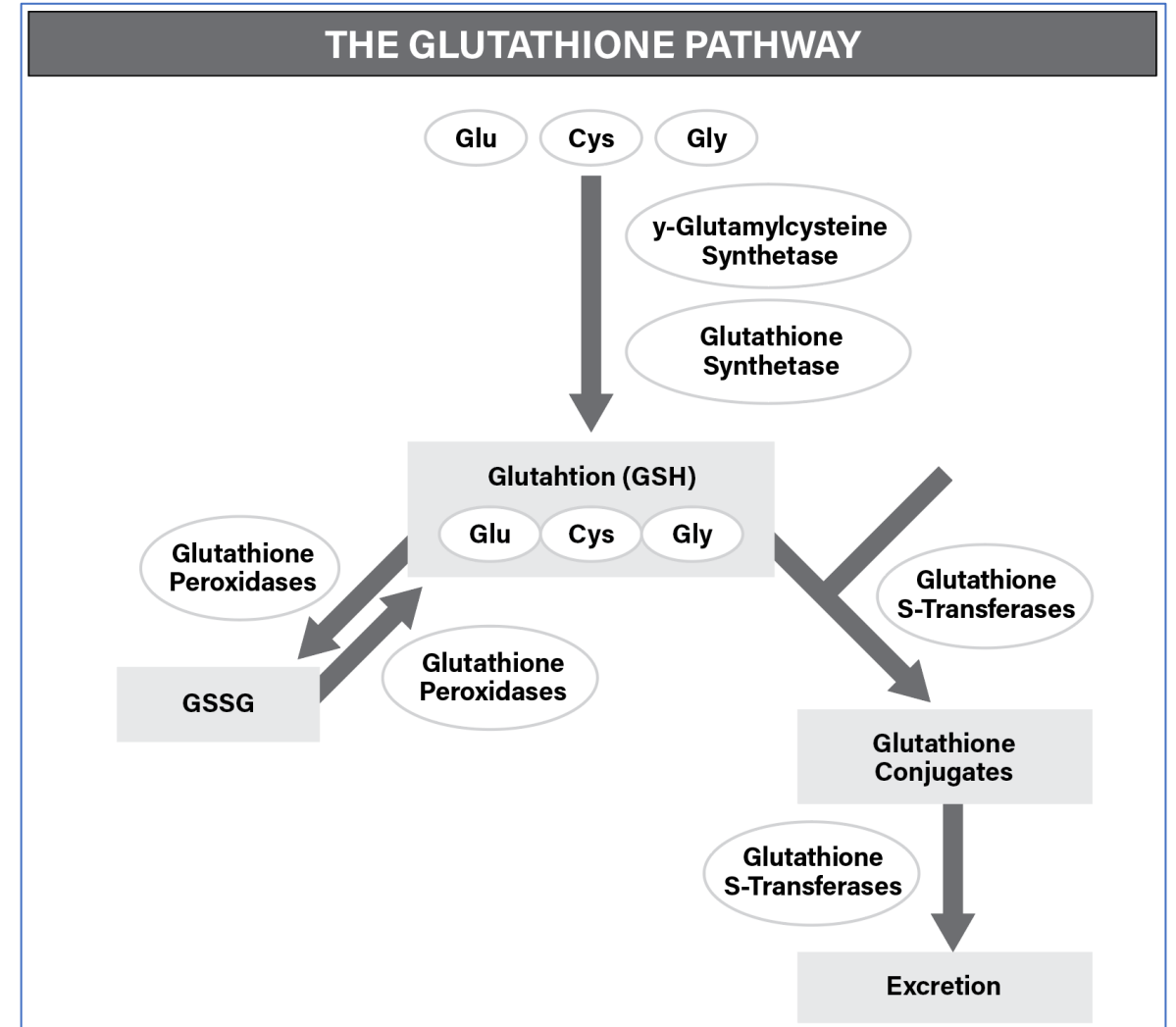


1. A tripeptide consisting of glycine, cysteine and glutamate.
2. Found in cytoplasm of most cells
3. Functions include:
 - Cleaning up free radicals
 - Detoxify fat-soluble compounds
 - Other metabolic functions, such as amino acid transport and DNA synthesis
 - Maintaining immune system functions

Glutathione



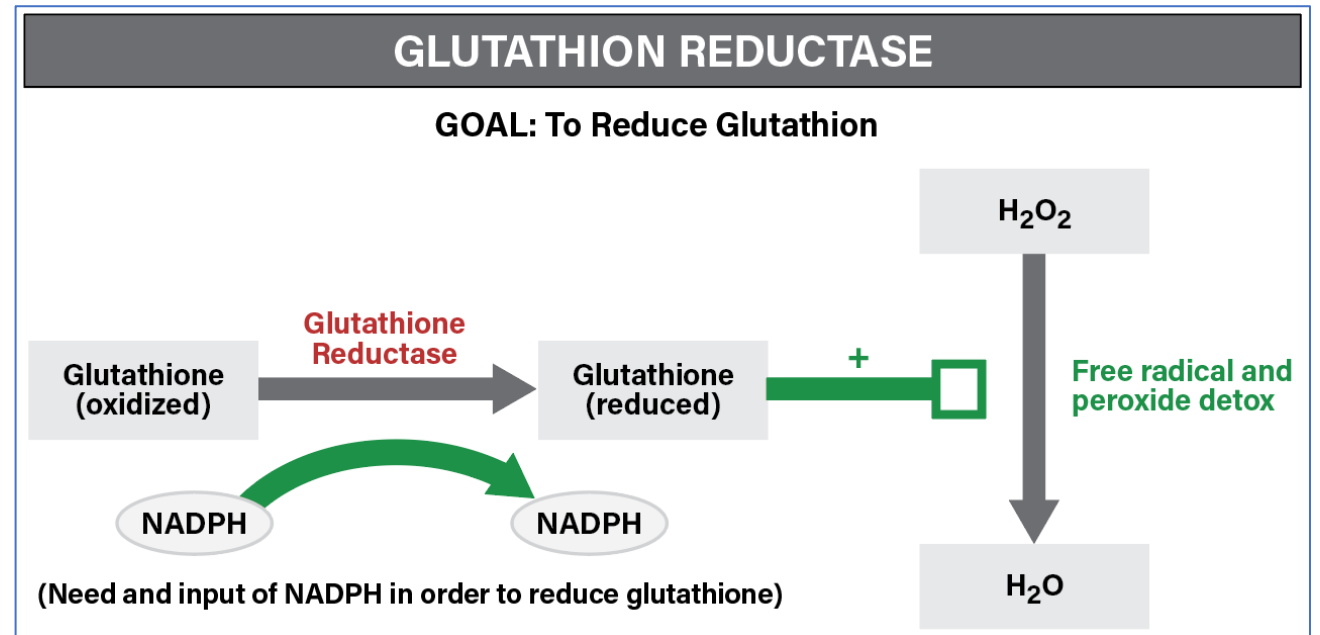
- A Sulphur containing, endogenously synthesized, tripeptide considered as master antioxidant.
- Synthesized from amino acids, Glycine, Glutamic acid, Cysteine in liver.
- It is a primary intracellular, more specifically, mitochondrial antioxidant, essential to life.
- Reduced to oxidized balance of Glutathione (Redox State) if critical to all, cellular metabolic and detoxification functions.



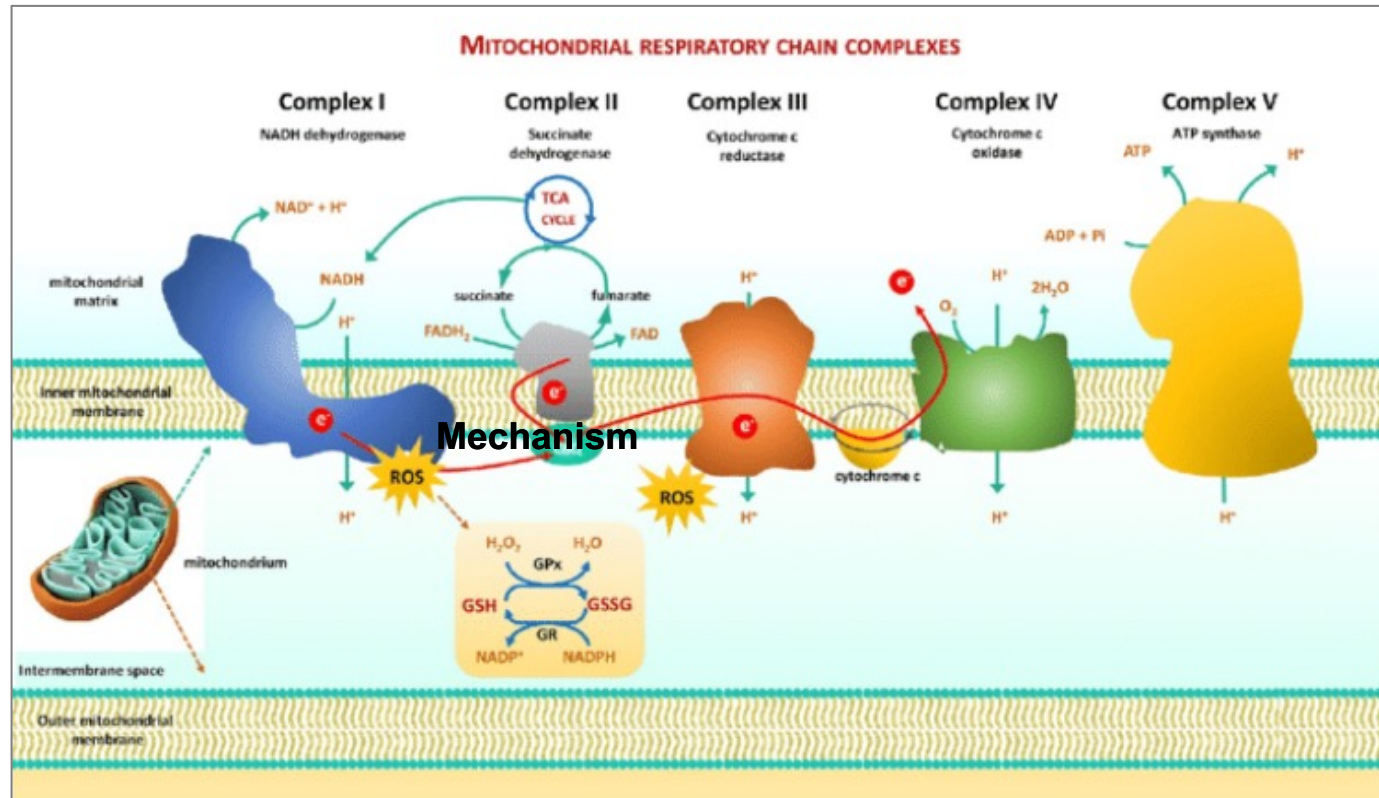
Mechanism



- The higher the levels of cellular GSH:GSSG, the lower the level of oxidative stress, leading to antiaging and wellness benefits.
- The lower the levels, the more oxidative damage, leading to advancement of metabolic diseases, inflammation, and aging.



Electron Transport Chain



Respiratory chain complexes or electron transport chain (ETC). ETC comprises four enzyme complexes (complexes I-IV), two intermediary substrates, coenzyme Q (CoQ) and cytochrome C (CytC), and ATP synthase that, within the electron/proton pathways generate ATP at the matrix side of mitochondria. The NADH, H⁺, and FADH₂ produced by the intermediate metabolism (TCA)

ROS-Neutralizer

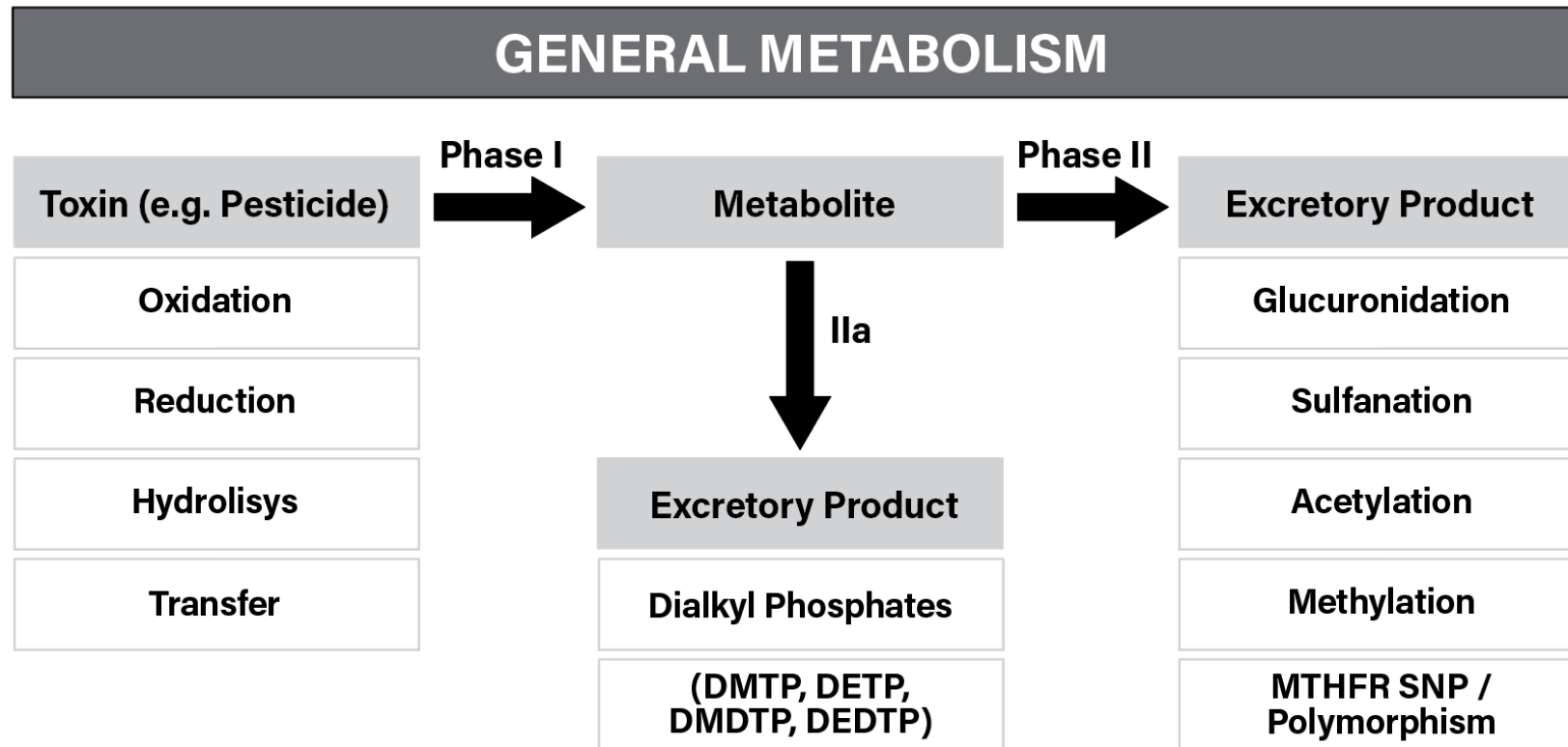


- Crucial is its participation in the Electron Transport Chain (ETC), where it acts on Complex IV to produce H₂O from Reactive Oxygen Species (ROS). Although, at ETC level, many other antioxidants such as Vitamin C, Vitamin E, and Coenzyme Q10, play roles. However, nothing else works at Complex IV to reduce ROS levels. This process further leads to ATP (Energy) production, required to maintain all biological functions.
- Since ETC is happening in all cells to produce energy, the number of ROS generated must be reduced or balanced simultaneously to keep body in redox balance.
- As we age, in addition to lifestyle and stressors; glutathione endogenous production diminishes resulting in a state of oxidative stress. ROS can attack biological membranes, enzymes, proteins, and nucleic acids. These insults develop into degenerative patho-physiological conditions.



How Do We Detox?

Detoxification



Phase I Detoxification



- Involves making a molecule less toxic.
- Produces an intermediate metabolite that can sometimes be more dangerous than the parent toxin being detoxified.
- Hopefully, quickly detoxified in phase II before it causes liver damage.
- Phase I can be slowed down or accelerated by various drugs (cimetidine, benzo's, anti-histamines, anti-fungals and OCPs) inhibit phase 1 detoxification.

Phase II Detoxification



- Conjugation renders the toxin water soluble, enabling excretion through bile or urine.
- Must be urinating and having bowel movements daily.
- Glutathione very important
 - Potent antioxidant and essential substrate
 - Other required dietary cofactors (Vitamin C, Vitamin E, selenium, CoQ10, Copper, Zinc, Manganese, Molybdenum, carotenoids, sulfur compounds, phytochemicals).

Phase II Detoxification



The toxins include but are not limited to:

- Pesticides
- Acetaminophen
- Penicillin and Tetracycline
- Alcohol
- Petroleum distillates
- Toxic Heavy Metals
 - Lead, Mercury, Cadmium (as chelator)



Often Unknown Factors

Glutathione is Highly Unstable



*Highly unstable molecule that oxidizes very quickly

*The key player in its antioxidant function is the cysteine residue, which contains a thiol group (SH) susceptible to oxidation.

For IV

- Use a pharmacy that does not make large vats that sit for long periods
- Use a pharmacy that tests their GSH often
- Very careful to not aspirate vial
- Do not let it sit in the IV bag or prep syringe for push

For Oral or Topical

- Encapsulate in fat
 - May degrade in digestion
 - Better topical carrier as well

GHS Osmolarity



- Higher osmolarity than many other injectables
- Still okay at 50:50 with normal saline
- If mixed with other ingredients such as Meyers, consider osmolarity



Types of Applications

Topical Glutathione for Aesthetics



Yoo Direct Health are the EXPERTS!

Topical Glutathione for Systemic Support



- Sub-nano Technology
- <https://aurowellness.com/>



Glutathione Nebulizer / Inhaled



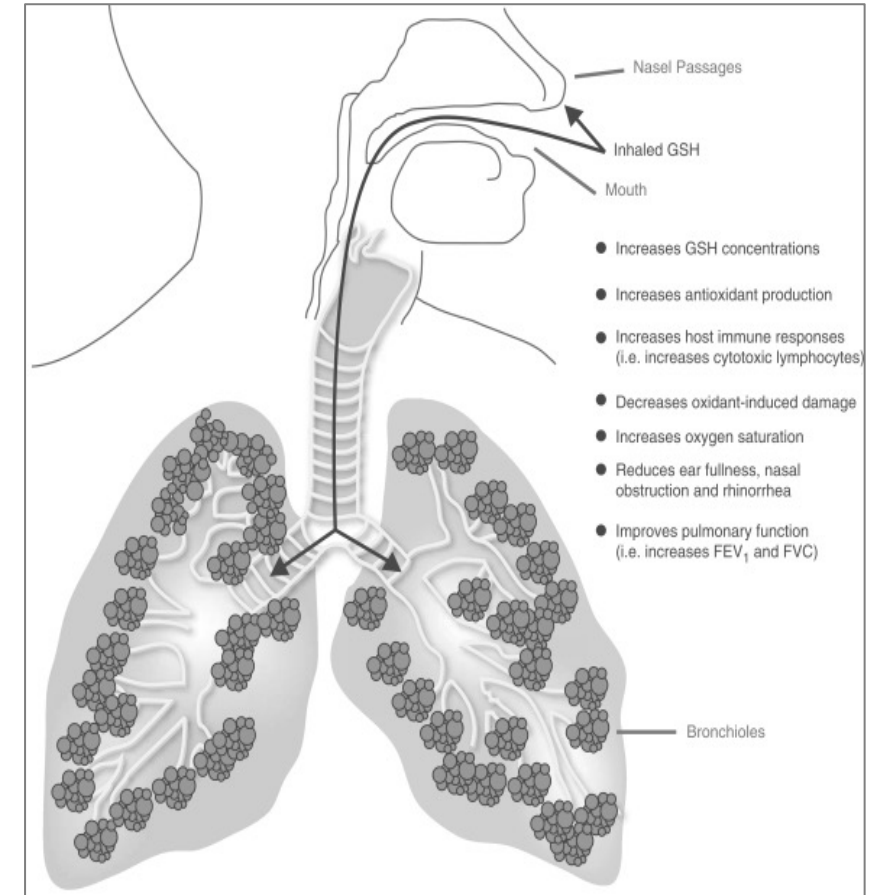
- Commonly used as treatment for pulmonary conditions, such as:
- Cystic Fibrosis
- COPD
- Idiopathic pulmonary fibrosis
- Chronic rhinitis
- Chronic otitis media effusion
- COVID

Glutathione Inhalation



Mechanism of Action¹

- Increases glutathione concentration in upper and lower respiratory tract, which reduces oxidative damages of the lining
- Also increases the level of cytotoxic lymphocytes, which improves host defense



IV Dosing Protocol



- 500 mg is a reasonable starting dose for conditions benefiting from Glutathione wellness goals.
- Always evaluate patients by using dose titration protocol prior to high dose administration. In general, increments of 500 mg per infusion over time is used for most therapeutic protocols.
- Glutathione is generally given via IV push by mixing equal parts with **sterile water or normal saline**, up to a maximum of 3000 mg. Used in advanced cancer cases, Parkinson's, and other neurological conditions to support immune and detoxification systems.
- Titration is advised for everyone, starting at 500mg up to 3000mg

Glutathione Push



- Start with 500 mg, increase by 200-400 mg each treatment
- May go up to 3000 mg – average is about 1500 mg – given 2-3 times weekly at first
- Most useful protocol: 800 mg glutathione with 1cc (1000mcg/ml) of B₁₂ and 500 mg of magnesium chloride

Meyer's Protocol



- Meyer's Cocktail (less than 20G C - Antioxidant)
- 1-3G Glutathione Push

OR

- Meyers Cocktail (less than 20G C – Antioxidant)
- 100ml bag saline w/ 1-3G GHS put in the last inch

Contraindications and Considerations



Contraindications

- Sulfur sensitivity or allergy
- Pregnancy
- *Asthma

Considerations

- Source
- Other IV treatments – do not administer too close to oxidative IV treatments
- Can "pre-treat" with GHS
- If patient responds to oxidative therapy with inability to detox, can use GHS as anecdote
- Vitamin C aids in Phase I Detox – GHS is great as follow up. (20G or less of C as antioxidative)

IV Resources



- Texas Star
 - Above the rest when it comes to factors for IV infusion

Marketing/Branding Ideas



- **Name Ideas:**
- Glow Within, Cellbrator, Detox Dynamo, GHS Glow, TriPeptide Power
- **Fun descriptions:**
- Unveiled by science, embraced by beauty. Our [Product Name] harnesses the power of glutathione, a revolutionary antioxidant, to fight free radicals and promote a youthful radiance from within.
- Age is just a number. Rejuvenate your cells and reclaim your youthful glow with [Product Name].
- Feeling the effects of time? [Product Name] IV offers a revolutionary approach to cellular rejuvenation. This age-defying intravenous infusion delivers a potent blend of antioxidants directly into your bloodstream, where they can fight free radicals and support optimal cellular health.

References



1. Rahman, I., & Kinnula, V. L. (2012). Strategies to decrease ongoing oxidant burden in chronic obstructive pulmonary disease. *Expert Review of Clinical Pharmacology*, 5(3), 293-309