



**RESHAPING WEIGHT LOSS FROM INJECTIONS FOR THE
FEW THROUGH ORAL-SUBLINGUAL WEIGHT LOSS AND
WEIGHT PREVENTION FOOD FOR THE MANY**

A bioscience company developing
dietary supplements & medical nutrition
for Metabolic Health

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African Mango



Berberine



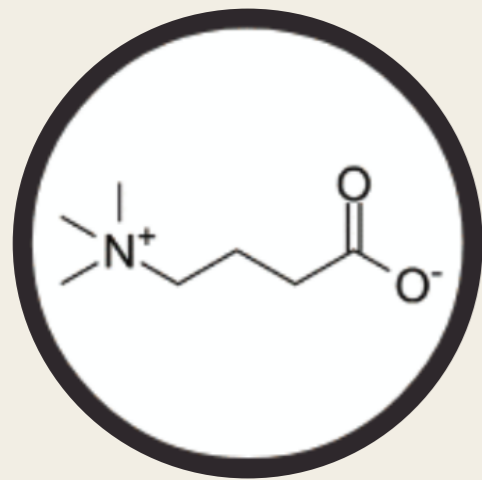
Cissus



Allulose



GBB



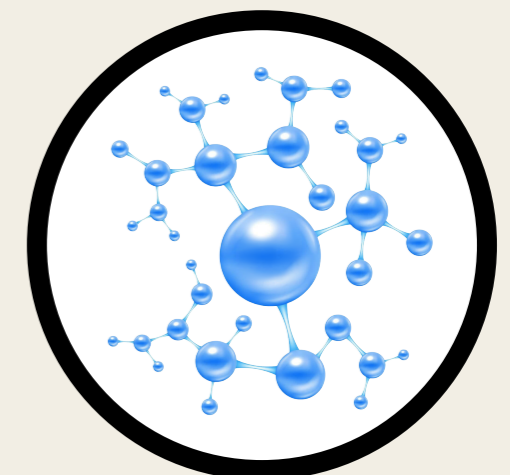
MCT Oil



Iron



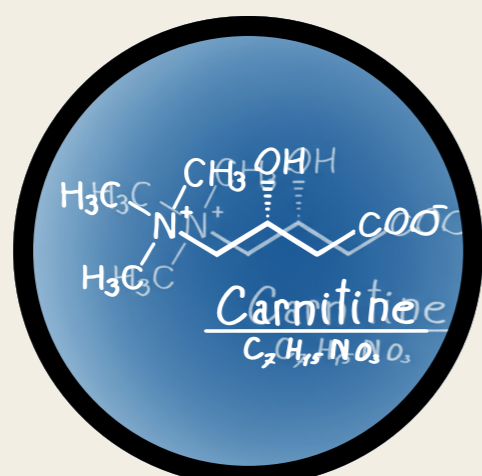
B12



ORAL GLP-1 SUBLINGUALS

- 28.1 pound reduction in 10 weeks
- 6.7 inch waist reduction in 10 weeks
- 16% body fat reduction in 10 weeks

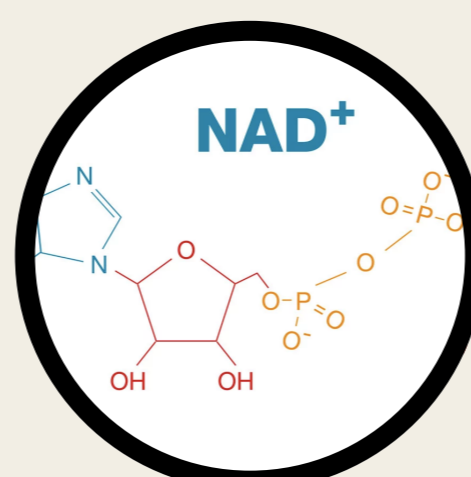
L-Carnitine



Magnesium



NAD+





African Mango Seed (*Irvingia gabonensis*)


Plant source: The seed (or “dika nut”) of the African mango fruit native to West and Central Africa.

- **Active compounds:** Soluble fiber, polyphenols, and seed proteins that influence **adiponectin**, **leptin**, and **PPAR- γ** pathways — key regulators of fat metabolism and appetite.

Science-Backed Benefits

1 Weight Management

- Clinical trials show **significant reductions in body weight, waist circumference, and body fat** after 8–12 weeks of supplementation.
- Mechanisms:
 - Improves **leptin sensitivity**, helping the brain detect fullness
 - Slows **gastric emptying**, increasing satiety
 - Reduces **adipogenesis** (formation of new fat cells)

 *Result:* Users eat less, feel full longer, and metabolize fat more efficiently.

2 Supports Healthy Cholesterol Levels

- Reduces **total cholesterol, LDL (“bad”) cholesterol, and triglycerides**, while increasing **HDL (“good”) cholesterol**.
- Mechanism:
 - The high soluble fiber content binds bile acids, promoting cholesterol excretion.
 - Polyphenols modulate hepatic lipid metabolism.

3 Balances Blood Sugar & Insulin Response

- African mango extract can **reduce fasting blood glucose and improve insulin sensitivity**.
- Mechanisms:
 - Slows carbohydrate absorption in the gut.
 - Enhances glucose uptake via **AMPK activation** — similar to the metabolic benefits seen with calorie restriction or exercise.

4 Improves Gut Health & Satiety Hormones

- The soluble fiber content acts as a **prebiotic**, supporting gut microbiota balance.
- Increases production of **GLP-1**, **PYY**, and **CCK** — all appetite-regulating peptides.

5 Anti-Inflammatory & Antioxidant Effects

- Contains **ellagic acid, quercetin, and other polyphenols** with anti-inflammatory effects.
- Reduces markers of oxidative stress and inflammation in adipose tissue, which supports metabolic health.

Mechanisms Summary Table

Mechanism	Effect
↑ Leptin sensitivity	Better appetite control
↑ Adiponectin	Enhanced fat metabolism
↑ GLP-1 / PYY	Increased satiety
↓ Lipogenesis	Reduced fat storage
↑ AMPK activation	Improved glucose and energy metabolism
↑ Fiber content	Slower digestion, better cholesterol control

Safety & Tolerability

- No known toxicity or major contraindications.

Human Clinical Evidence Snapshot

- Ngondi et al., *Lipids in Health & Disease* (2009)
10 weeks:
-28 lbs avg. body weight, ↓ LDL, ↓ glucose
- Oben et al., *Lipids in Health & Disease* (2008)
4 weeks:
↓ waist circumference, ↓ triglycerides
- Ngondi et al., *J Food Sci Nutr* (2013)
12 weeks:
Improved leptin/adiponectin ratio

Clinical Findings: [African Mango Link 1](#) [African Mango Link 2](#)



Cissus Quadrangularis — Overview

- **Plant family:** Vitaceae (same family as grapes)
- **Native to:** Africa, India, and Southeast Asia
- **Common forms:** Root or stem extract (standardized for ketosteroids or flavonoids)
- **Traditional uses:** Ayurvedic medicine for bone fractures (“Hadjod”), joint pain, and inflammation


1 Bone and Joint Health

Primary traditional and clinical benefit.

- Stimulates **osteoblast activity** (bone-building cells)
- Increases **collagen synthesis** → improves bone matrix and joint tissue integrity
- Reduces **pain and inflammation** in joints (similar to mild NSAID activity)

Clinical data:

- Studies in humans show faster fracture healing times and improved joint function in osteoarthritis.
- Often combined with calcium or vitamin D for synergy.

 *Mechanism:* Upregulates bone morphogenetic proteins (BMPs), enhances mineralization, and stabilizes cartilage matrix.


2 Weight Management & Metabolic Health

Cissus is one of few plant extracts with both bone and fat metabolism effects.

- Inhibits **lipase and amylase**, reducing fat and carb absorption
- Enhances **serotonin** levels, reducing appetite and emotional eating
- Improves **blood glucose, total cholesterol, and triglycerides**
- Activates **AMPK pathway**, promoting energy expenditure and fat oxidation


3 Anti-Inflammatory and Antioxidant Support

- Contains **flavonoids, triterpenes, and ketosteroids** with potent antioxidant activity.
- Reduces **CRP, TNF- α , and IL-6**, lowering systemic inflammation.
- Protects cartilage, muscles, and connective tissue from oxidative damage.

 *Why this matters:* Supports recovery and reduces metabolic inflammation linked to obesity and insulin resistance.

4 Sports Recovery and Lean Muscle Preservation

- Reduces **cortisol** and **oxidative stress**, helping preserve lean mass during calorie restriction.
- May improve **strength recovery** post-exercise.
- Used in sports nutrition to **maintain joint comfort and muscle mass** during intense training or weight loss phases.

 *Mechanism:* Cortisol modulation + enhanced collagen and protein synthesis.

5 Cognitive and Mood Benefits

- Early studies suggest mild **serotonergic and adaptogenic** effects.
- Reduces stress-related overeating and improves focus/energy during dieting.

Mechanistic Summary Table


Mechanism	Effect
↑ Osteoblast activity	Bone & joint repair
↑ Collagen synthesis	Stronger joints & tissues
↓ Lipase/amylase	Reduced fat & carb absorption
↑ Serotonin	Appetite & mood balance
↑ AMPK	Enhanced metabolic rate
↓ Cortisol	Lean muscle preservation
↓ Inflammatory cytokines	Lower inflammation

Safety & Tolerability

- No reported liver, kidney, or cardiovascular toxicity.

Clinical findings:

- Human trials (Oben et al., 2006; 2008) showed **significant reductions in body weight, BMI, waist circumference, and cholesterol** over 6–8 weeks.
- Works synergistically with other metabolic ingredients (like African mango or berberine).

 *Mechanism overlaps with GLP-1 activity:* appetite suppression, improved insulin sensitivity, and delayed gastric emptying.

Clinical Findings: [Cissus Link 1](#) [Cissus Link 2](#)



Berberine – Overview

- Source: An alkaloid extracted from plants like *Berberis*, *aristata*, *Berberis vulgaris*, *Coptis chinensis*, and *Hydrastis canadensis* (goldenseal).
- Traditional use: Ayurvedic and Chinese medicine for infections and digestive disorders.
- Modern science: Over 150+ clinical trials confirm its metabolic, cardiovascular, and anti-inflammatory benefits.,



1 Blood Sugar Regulation (Natural “Metformin Effect”)

- Berberine activates AMPK (adenosine monophosphate-activated protein kinase) — the same metabolic switch metformin targets.
- Increases insulin sensitivity and enhances glucose uptake in muscle cells.
- Reduces hepatic glucose production, leading to lower fasting blood sugar and HbA1c.



Clinical data:

- Studies show reductions of HbA1c by 0.9–2.0% (comparable to metformin).
- Works synergistically with low doses of metformin or natural GLP-1 activators.



Effect: Stabilizes blood sugar, prevents energy crashes, and reduces hunger.



2 Weight Management & Fat Metabolism

- Decreases lipogenesis (fat creation) and enhances lipolysis (fat breakdown).
- Inhibits differentiation of pre-adipocytes into fat cells.
- Suppresses gut peptide ghrelin (hunger hormone), reducing appetite.



Mechanism synergy with GLP-1:

- Increases GLP-1 secretion naturally
- Enhances insulin sensitivity
- Supports appetite and glucose balance



3 Cholesterol & Heart Health

- Lowers total cholesterol, LDL, and triglycerides, while raising HDL.
- Upregulates LDL receptors in the liver, increasing clearance of LDL particles.
- Reduces oxidized LDL and arterial inflammation.



Meta-analyses:

- Average reduction of LDL by 25–30%, triglycerides by 20–25%.
- Comparable to low-dose statin effects — without statin-related side effects.

Clinical Findings: [Berberine Link 1](#) [Berberine Link 2](#)

4 Gut Microbiome Modulation

- Acts as a natural antimicrobial and prebiotic modulator.
- Reduces harmful bacteria linked to obesity (e.g., Firmicutes) and supports beneficial Bacteroidetes.
- Gut changes contribute to improved GLP-1 secretion and metabolic efficiency.

5 Anti-Inflammatory & Antioxidant Benefits

- Reduces systemic inflammation by downregulating NF- κ B, IL-6, and TNF- α .
- Protects mitochondria from oxidative damage.
- Supports cardiovascular, liver, and metabolic organ health.

Mechanism Summary

Mechanism	Effect
↑ AMPK activation	Improved glucose + fat metabolism
↑ GLP-1 secretion	Natural appetite + insulin support
↓ Lipogenesis	Less fat accumulation
↑ Insulin sensitivity	Better glucose uptake
↓ Cholesterol & triglycerides	Heart & vascular health
↓ Inflammatory cytokines	Anti-inflammatory & anti-aging benefits

6 Emerging Benefits

- Gut-brain axis: Improves mood, cognition, and energy by stabilizing glucose and reducing inflammation.
- Longevity & anti-aging: AMPK activation mimics caloric restriction benefits.
- Liver support: Reduces fatty liver infiltration and improves hepatic enzymes.

Safety & Tolerability

Clinical Findings: [Berberine Link 1](#) [Berberine Link 2](#) [Berberine Link 3](#)



Key Benefits of MCT Oil

1. Quick Energy Source

- MCTs are rapidly absorbed and converted into ketones by the liver.
- Provides **fast energy for the brain and muscles** without being stored as fat.

2. Supports Ketosis

- Popular with **keto and low-carb diets**.
- Can help the body **produce ketones**, supporting fat-burning energy.

3. May Aid Weight Management

- Can increase **fullness and satiety**, reducing overall calorie intake.
- May slightly **increase metabolism**, promoting fat loss.

4. Cognitive Support

- Ketones from MCTs are an **alternative fuel for the brain**.
- Can improve **mental clarity and focus**, especially in low-carb diets.

5. Digestive Health

- Easier to digest than long-chain fats.
- May help **absorb fat-soluble nutrients** from foods.

6. Potential Blood Sugar Support

- MCTs may **improve insulin sensitivity** and reduce blood sugar spikes.

Clinical Findings: [MCT Oil 1](#) [MCT Oil 2](#)

Key Benefits of L-Carnitine

1. Fat Metabolism & Weight Support

- Helps **transport fatty acids into mitochondria**, where they are burned for energy.
- May support **fat loss** when combined with diet and exercise.

2. Enhanced Exercise Performance

- Can improve **endurance and stamina** by increasing energy availability.
- May reduce **muscle soreness and recovery time** after intense workouts.

3. Heart Health

- Supports **cardiovascular function** by improving energy production in heart cells.
- May benefit people with **heart conditions or heart failure** (under medical supervision).

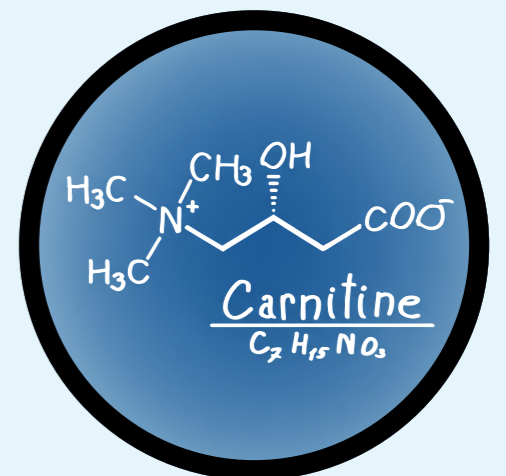
4. Cognitive Function

- Some studies suggest L-carnitine, especially **acetyl-L-carnitine**, may improve **mental clarity and memory**.

5. Energy Production

- Converts stored fat into usable energy, potentially **reducing fatigue**.

Clinical Findings: [L-Carnitine Link 1](#) [L-Carnitine Link 2](#) [L-Carnitine Link 3](#)





Key Benefits of Allulose

1. Low-Calorie Sweetener

- Provides **~0.2–0.4 calories per gram**(vs 4 calories per gram in sugar).
- Can be used to **reduce total calorie intake** while still enjoying sweet foods.

2. Blood Sugar & Insulin Support

- Does **not significantly raise blood glucose or insulin**, making it suitable for **diabetics or low-carb diets**.
- May improve **glycemic control** when replacing sugar.

3. Weight Management

- Can help **reduce calorie consumption**, supporting weight loss or maintenance.

4. Dental Health Friendly

- Unlike regular sugar, allulose **does not feed cavity-causing bacteria**,
- reducing the risk of tooth decay.

5. Antioxidant Effects (Emerging Research)

- Some studies suggest allulose may **reduce oxidative stress** and inflammation.

6. Gut Tolerance

- Generally well-tolerated in moderate amounts.
- **Supports Eye Health**
- Converted to vitamin A in the body, which is essential for **good vision**.
- Helps prevent **night blindness** and supports **overall eye function**.

7. Powerful Antioxidant

- Neutralizes **free radicals**, reducing oxidative stress.
- May help **lower the risk of chronic diseases** like heart disease and certain cancers.

8. Immune System Support

- Vitamin A from beta-carotene supports **immune function**.
- Helps maintain **healthy skin and mucous membranes**, which act as barriers against infections.

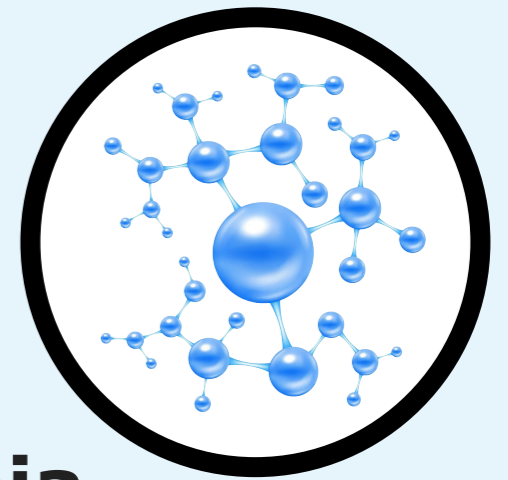
9. Skin Health

- Can promote **healthy skin** and may protect against **sun damage**.

10. Cardiovascular Health

- Antioxidant properties may help **protect arteries** and improve heart health.

Clinical Findings: [Allulose Link 1](#) [Allulose Link 2](#)



Key Benefits of Vitamin B12

1. Supports Red Blood Cell Formation & Prevents Anemia

- Essential for producing healthy red blood cells.
- Helps prevent **megaloblastic anemia**, which causes fatigue and weakness.

2. Promotes Nervous System Health

- Maintains **myelin sheath** around nerves for proper signaling.
- Supports **brain function, memory, and mood regulation**.

3. Boosts Energy Levels

- Plays a critical role in **converting food into energy**.
- Deficiency can lead to **fatigue, weakness, and low stamina**.

4. Supports Heart Health

- Helps metabolize **homocysteine**, an amino acid linked to cardiovascular disease.
- Proper B12 levels may **reduce heart disease risk**.

5. Aids DNA & Cell Production

- Necessary for **DNA synthesis** and normal cell division.

6. Supports Mental Health

- Low B12 is linked to **depression, irritability, and cognitive decline**. Supplementation may improve **mood and mental clarity**, especially in deficient individuals.

Clinical Findings: [Vitamin B12 Link 1](#) [Vitamin B12 Link 2](#)



Benefits of Magnesium

How Magnesium Fights Inflammation

1. **Downregulates pro-inflammatory cytokines**
 - Low magnesium increases IL-1 β , IL-6, and TNF- α .
 - Adequate magnesium reduces CRP (C-reactive protein), a marker of systemic inflammation.
2. **Reduces oxidative stress**
 - Acts as a cofactor for antioxidant enzymes (e.g., glutathione peroxidase, SOD).
 - Lowers ROS production and endothelial dysfunction.
3. **Regulates calcium balance**
 - Prevents calcium overload in cells reduced excitotoxicity and tissue inflammation.
4. **Supports mitochondrial health**
 - Magnesium stabilizes ATP and supports mitochondrial biogenesis, which is crucial for preventing chronic inflammatory signaling.
5. **Improves gut barrier function**
 - Supports tight junction integrity reduces “leaky gut”-induced inflammation (a key root of systemic inflammatory issues).

Inflammation-Linked Benefits

System	Anti-Inflammatory Outcome
Metabolic	Improves insulin sensitivity and glucose control (important for GLP-1 synergy).
Cardiovasc	Reduces hypertension, arterial stiffness, and CRP.
Neurologica	Mitigates anxiety, depression, migraines, and
Musculoskeletal	Lessens joint pain, cramps, and exercise-induced inflammation.
Gut &	Calms immune overactivation and improves gut-lining

Summary

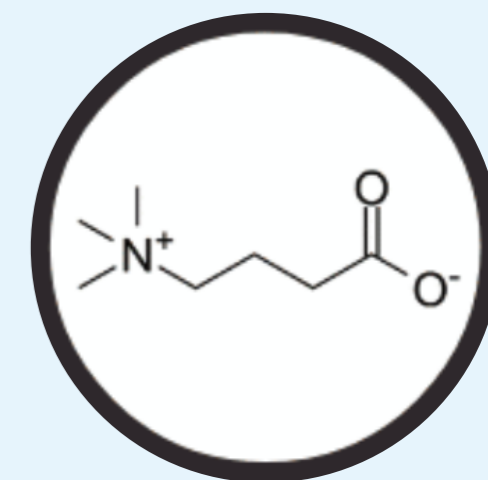
Mechanism	Effect
↓ NF-κB, IL-6, TNF-α	Systemic anti-inflammatory effect
↑ Glutathione & SOD	Reduces oxidative stress
↑ Insulin sensitivity	Supports metabolic and GLP-1 pathways
↓ Cortisol & excitatory stress	Calms neuroinflammation
↑ ATP & mitochondrial efficiency	Enhances recovery and resilience

Clinical Research Snapshot

- **Meta-analysis (Dibaba et al., 2014, *Eur J Clin Nutr*):** Higher magnesium intake → significantly lower CRP, IL-6, and TNF-α levels.
- **Study (Guerrero-Romero et al., 2019):** Magnesium supplementation improved insulin sensitivity and reduced inflammation in type 2 diabetics.
- **Study (Nielsen, 2018):** Magnesium deficiency induces low-grade inflammation and oxidative stress even in otherwise healthy individuals.

Clinical Findings: [Magnesium Link 1](#) [Magnesium Link 2](#)

Gamma-Butyrobetaine (GBB) Benefits



GBB is a naturally occurring molecule involved in **L-carnitine biosynthesis** — meaning it helps your body make carnitine, which transports fatty acids into mitochondria

1. Supports Fat Metabolism

- GBB increases **endogenous L-carnitine levels**, helping the body convert fat into usable energy.
- Often marketed as a "**fat mobilizer**" in pre-workouts or thermogenic supplements.

2. Promotes Thermogenesis & Sweating

- Users often report **increased sweating**, indicating higher metabolic activity and heat production.
- That's why GBB is nicknamed "**super carnitine**" in fitness circles.

3. Enhances Energy & Endurance

- By improving fatty acid oxidation, it may enhance **aerobic performance** and **reduce fatigue** during exercise.

4. Cardiovascular Support

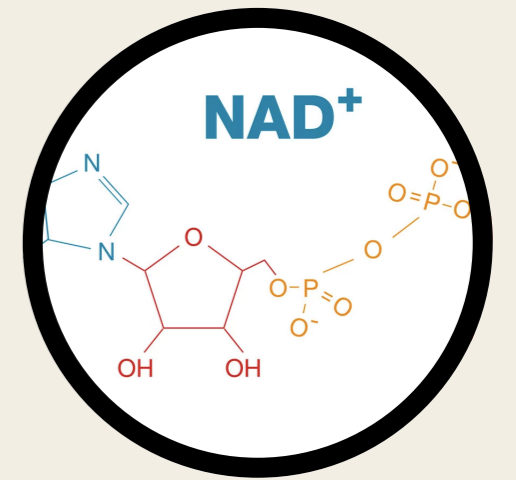
- Carnitine (and by extension GBB) plays a role in **heart health** by improving fatty acid utilization in cardiac tissue.

5. Potential Cognitive Benefits

- Carnitine (and by extension GBB) plays a role in **heart health** by improving fatty acid utilization in cardiac tissue.

Clinical Findings: [GBB Link 1](#) [GBB Link 2](#)

What NAD⁺ Is



NAD⁺ (oxidized) and **NADH** (reduced) are coenzymes found in all living cells.

They're crucial for:

- Energy metabolism (converting food → ATP)
- DNA repair
- Cell signaling
- Regulation of aging-related processes

With age or stress, **NAD⁺ levels naturally decline**, which is linked to metabolic and cognitive decline.

✔ **Benefits of NAD⁺ (and NAD Boosters like NMN or NR)**

1. ⚡ **Increased Cellular Energy**

- **NAD⁺** is essential for mitochondrial ATP production.
- Supplementing NAD⁺ precursors (like **NMN** or **NR**) can **restore NAD⁺ levels** and improve energy metabolism in animal and human studies.
- Human data show increases in energy and reduced fatigue in some clinical trials.

2. 🧠 **Cognitive & Neuroprotective Effects**

- NAD⁺ supports **neuronal health** and **DNA repair**.
- Preclinical studies show improved **memory and cognitive function** in aging and Alzheimer's models.
- Early human studies suggest NAD⁺ precursors may **support brain function and mental clarity**.

3. ❤️ **Cardiovascular Health**

- NAD⁺ activates **sirtuins (especially SIRT1)**, which improve **endothelial function and reduce inflammation**.
- Animal models show improved vascular elasticity and reduced blood pressure with NAD⁺ restoration.
- Human data are limited but promising (e.g., slight improvements in arterial stiffness).

4. 🔬 **DNA Repair & Anti-Aging**

- NAD⁺ is required by **PARP enzymes**, which repair damaged DNA.
- Maintaining NAD⁺ levels helps reduce **oxidative stress** and **cellular senescence**, key contributors to aging.
- This is the foundation of the "NAD and longevity" research trend.

5. 🏆 Metabolic Health

- NAD⁺ is vital in glucose and fat metabolism.
- Boosting NAD⁺ has been linked to **better insulin sensitivity** and **improved lipid metabolism** in animals.
- Early human studies show potential for improving metabolic flexibility and reducing **fatigue**.

6. 🧩 Addiction & Recovery Support

- Intravenous NAD⁺ therapy has been explored in addiction recovery programs (alcohol, opioids, etc.).
- Anecdotally, people report reduced cravings and withdrawal symptoms, but **evidence is still preliminary**.

📖 Human Research Snapshot

Study	Supplement	Participants	Key Findings
Trammell et al., Nat Commun, 2016	Nicotinamide riboside (NR)	12 men	↑ Blood NAD ⁺ 60% in 7 days
Martens et al., Nat Commun, 2018	NR 500 mg twice daily	Older adults	Improved arterial health
Yoshino et al., Science, 2021	NMN 250 mg/day	Middle-aged men	Improved insulin sensitivity
Yoshino et al., Science, 2021	IV NAD ⁺	12 volunteers	↑NAD ⁺ in blood, safe and well tolerated

🧭 Bottom Line

- **NAD⁺ is fundamental** to life — boosting it supports metabolism, repair, and resilience.
- **Animal evidence is strong**, and **early human trials are encouraging** for energy, metabolism, and aging.

Clinical Findings: [NAD+ Link 1](#) [NAD+ Link 2](#)



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