

#ideaworld




KNOWLEDGE • COMMUNITY • INSPIRATION

Harnessing Urolithin A: A New Frontier in Muscle Health and Anti-Aging

PRESENTED BY
Jennifer Scheinman, MS, RDN, CDN

1

Aging Starts Earlier Than Most Think




Starting around 30, individuals can lose 3-8% of their muscle mass per decade.

After the age of 60, the loss can reach up to 15% per decade.

Early intervention strategies are needed to slow this decline.

PMID: 30427277
PMID: 23340189

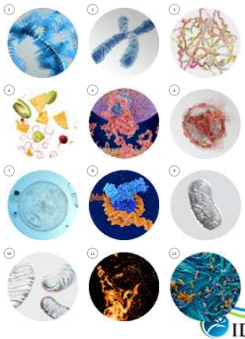
#ideaworld




2

Biological Hallmarks of Aging

1. Genomic Instability
2. Telomere Attrition
3. Loss of Proteostasis
4. Deregulated Nutrient Sensing
5. Altered Intracellular Communication
6. Cellular Senescence
7. Stem Cell Exhaustion
8. Epigenetic Alterations
9. Mitochondrial Dysfunction
10. Decline in Macroautophagy (e.g. Mitophagy)
11. Chronic Inflammation
12. Gut Microbiome Dysbiosis

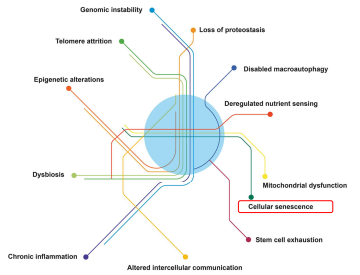


#ideaworld



3


Mitochondrial Decline as a Central Hallmark



- Mitochondrial dysfunction intricately involved with:
- Cellular senescence
- Loss of proteostasis
- Altered intercellular communication
- Disabled macroautophagy
- Chronic inflammation
- Safe interventions that hit multiple biological aging pathways have the most potential benefit

Li et al. 2023 <https://doi.org/10.1111/bsc.13942>

#ideaworld




4

All About the Mitochondria

7 Surprising Facts About Mitochondria

- 1 The origin story**
Mitochondria evolved from ancient bacteria that formed a symbiotic relationship with early eukaryotic cells, leading to a partnership so successful that we coevolved together.
- 2 Mitochondria Have Their Own DNA (But It's Mostly Mom's)**
Unlike the rest of your DNA, mitochondrial DNA is inherited from your mother. This unique inheritance pattern has earned them the nickname "maternal legacy", carrying information through generations.
- 3 The Shape-Shifters of the Cell**
Mitochondria aren't static; they constantly change shape through processes called **fusion** and **fission**. Fusion helps them form larger, more efficient networks, while fission allows them to split and multiply, ensuring each daughter cell inherits mitochondria during cell division.
- 4 They Recycle**
Mitochondria constantly undergo a cleanup process known as **mitophagy**. When a mitochondria gets old or damaged, this quality control mechanism removes and recycles dysfunctional mitochondria. This process is crucial for cellular health, preventing the buildup of dysfunctional mitochondria and supporting longevity.

#ideaworld




5


All About the Mitochondria

7 Surprising Facts About Mitochondria

- 5 Energy on Demand**
Not all cells have the same energy needs, so not all cells have the same quantity of mitochondria. **Muscle cells**, especially those in the heart **have thousands of mitochondria**, while skin cells have fewer since they require less energy.
- 6 Customized for the Job**
Mitochondria aren't one-size-fits-all; their shape and structure is different depending on the cell type.
- 7 Not Just a Powerhouse**
They have roles in the cell outside of energy metabolism, including regulating cell death (apoptosis), calcium homeostasis, synthesis of molecules like steroid hormones and amino acids.



#ideaworld



6

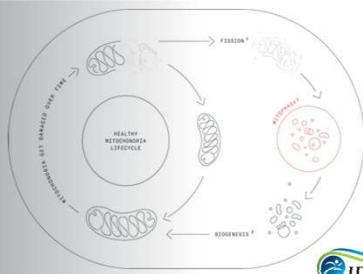
Understanding Mitochondrial Dynamics

Mitochondria have a dynamic life cycle.

They are in a constant cycle of fission and fusion, which are essential for maintaining mitochondrial function.

Mitophagy

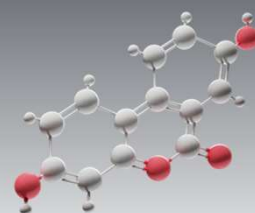
The biological pathway activated with regular exercise, intermittent fasting and Urolithin A



#ideaworld

7

Introducing Urolithin A



#ideaworld

8

Urolithin A:

A Naturally Occurring Postbiotic Produced By Gut Microbiome



Ellagitannins

Pomegranates, berries & nuts are rich sources of compounds known as ellagitannins, a precursor to Urolithin A



Gut Transforms Ellagitannins to Urolithin A
Only 30-40% of people produce Urolithin A at variable quantities



Healthier Mitochondria
Stimulates mitophagy where dysfunctional mitochondria are recycled and replaced by new, healthy mitochondria



#ideaworld

9

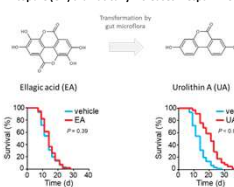
mitopure

nature
medicine

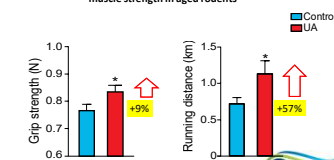
Urolithin A induces mitophagy and prolongs lifespan in *C. elegans* and increases muscle function in rodents

Doungrod Bui^{1,2}, Laurent Monchaux^{1,2}, Pauline A. Anderson^{1,2,3}, Elena Katsenhuba¹, Nicolas Mollat¹, Jeanne-Marie A. Nadeau de Feltre¹, Franck Villard¹, Pierre Bui¹, Christophe Le Somer¹, Damien Huard¹, Patrick Ardouin¹, Carsten Sandt¹, Chris Risch¹ & Johan Auwerx^{1,2,3}

Mitopure (UA) dramatically increases lifespan in *C. elegans*



Mitopure administration improves aerobic endurance capacity & muscle strength in aged rodents



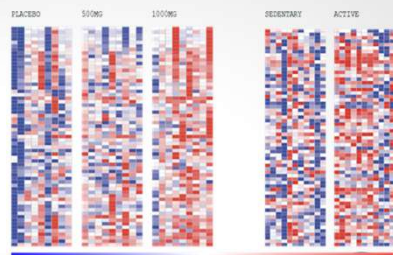
Ryu et al. 2016 <https://doi.org/10.1038/nm.4132>

10

Supplementation with Urolithin A in Humans Has Shown:

▶ Mitochondrial gene expression similar to aerobic exercise regimens

Heatmap represents genes that are the most significantly changed by the treatment within the GO_MITOCHONDRION genset



Andrew PA, et al. Nature Metabolism 2019



#ideaworld

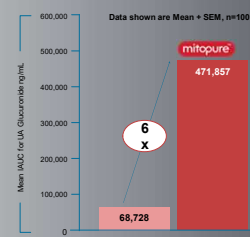
11

Can You Get Enough Urolithin A From Food?

- Only ~30-40% have the right microbiome to make it.
- Many producers don't create therapeutic levels.
- 500 mgs of Mitopure provide 6x more Urolithin A in the blood stream than 8oz of pomegranate juice.



Pomegranate juice = 30g sugar per 8oz glass



* European Journal of Clinical Nutrition 2021

#ideaworld



12

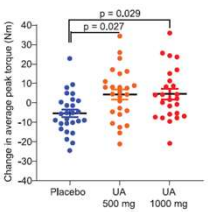
Urolithin A for Muscle Health

Mitopure is clinically proven to

- Increase cellular energy
- Increases muscle strength by up to 12% after 16 weeks with 500 mgs in overweight middle aged adults*

All of our trials are published in high impact medical journals including:

- *Nature Metabolism*
- *JAMA Open Network*
- *Cell Reports Medicine*
- *European Journal of Clinical*



• Middle-aged overweight adults (n=90)
• Daily Mitopure® for 4 months

#ideaworld **IDEA WORLD** HEALTH & FITNESS

PMID: 32694802 PMID: 35584623 PMID: 35050355
© 2023 IDEA Health & Fitness Association. All Rights Reserved.

13

Moving Beyond Muscle

Mitochondrial health critical for multiple organ systems


- Topical application of Mitopure promotes mitophagy in skin cells
- Genes that regulate collagen assembly and organization are upregulated
- Significant reduction in UV induced erythema

Immune aging (unpublished data – poster presented at AAI)

- 1 month of 1000 mgs of Mitopure elicits improvements in immune markers, and mitochondrial function in healthy adults

Ongoing trials (ClinicalTrials.gov)

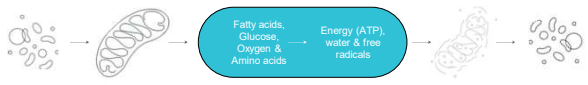
- Endurance athletes
- Glucose metabolism
- Inflammatory markers in prostate cancer patients
- Adjunct to Pulmonary Rehabilitation in COPD patients
- Immobilized patients



doi: <https://doi.org/10.1101/2023.06.16.23291378>
https://doi.org/10.1200/JCO.2024.42.16_suppl.4456

14

How is Urolithin A Different Than Other Mitochondrial Health Supplements



	Mitophagy	Energy Production	Biogenesis
Pathways to target	Clearance of damaged mitochondria	Optimal functioning of mature mitochondria	Creation of new mitochondria
Nutrition Based Bioactives	Urolithin A	CoQ10 NAD+ B vitamins	Urolithin A NAD+ Resveratrol

#ideaworld **IDEA WORLD** HEALTH & FITNESS

© 2023 IDEA Health & Fitness Association. All Rights Reserved.

15


How to Supplement with Mitopure

500 mg to 1000 mg a day
Benefits plateau at 1000mg

Should be taken at consistent time of day
Okay to take any time of day

Can be taken fasted or fed

**Vegan soft gel
Sugar-free gummy
Berry powder**



16

Are There Safety Concerns when Supplementing with Urolithin A?

Excellent safety data

- No difference in adverse events and side effect between Mitopure and placebo in clinical trials
- 1000's of consumers safely taking Mitopure
- No known interactions with medications, other supplements or herbs
- No Tolerable Upper Intake Levels established or concerns with toxicity
- 3rd party tested for quality and safety



doi: <https://doi.org/10.1101/2023.06.16.23291378>
https://doi.org/10.1200/JCO.2024.42.16_suppl.4456

17

Committed to the Highest Standards in Research and Quality

15 ⁺ Years of research In collaboration with the Swiss Federal Institute of Technology de Lausanne (EPFL)	11 Human clinical trials Completed and ongoing clinical trials involving over 900 participants	300 ⁺ Studies on Urolithin A Scientists have extensively explored the effectiveness of Urolithin A on mitochondrial health	56 Patents Our proprietary ingredient Mitopure® is protected under 50+ patents
--	--	---	--





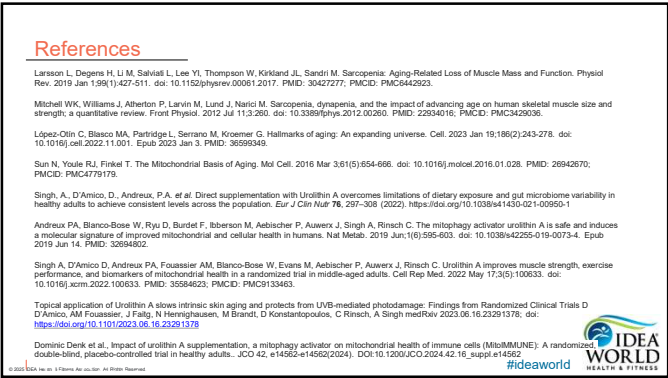
#ideaworld **IDEA WORLD** HEALTH & FITNESS

© 2023 IDEA Health & Fitness Association. All Rights Reserved.

18



19



20



21