

NEW

# RENUAL



Offer your patients who need support with **energy production, muscle function, and healthy aging**, access to this exclusive, first-to-market formula<sup>†\*</sup>

#1 MOST  
TRUSTED  
Practitioner  
Brand<sup>‡</sup>

<sup>‡</sup>Nutrition Business Journal® 2016.

<sup>\*</sup>As of 11/2/2020 in the healthcare practitioner channel.

<sup>†</sup>These statements have not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

**pure**  
encapsulations®



## AGE ASSOCIATED CELLULAR DECLINE (AACD)

AACD is the common, time-related deterioration in the way our cells function as we age, which often begins in our 40s and accelerates in our 60s. While aging is a complex process involving many physical changes, new advances in scientific discovery have brought a wealth of understanding about **why** we age, **what** cellular processes change with age, and the important role cellular health plays in **how** we age.

Common signs of AACD often include lower levels of daily energy, the erosion of strength and stamina, and reduced resilience.

Evolving research shows that these changes are due to a gradual decline in cellular energy production. They become noticeable once they affect the performance of enough cells in a specific function.

AACD represents a major advance in the scientific understanding of mechanisms that determine how we will all age.

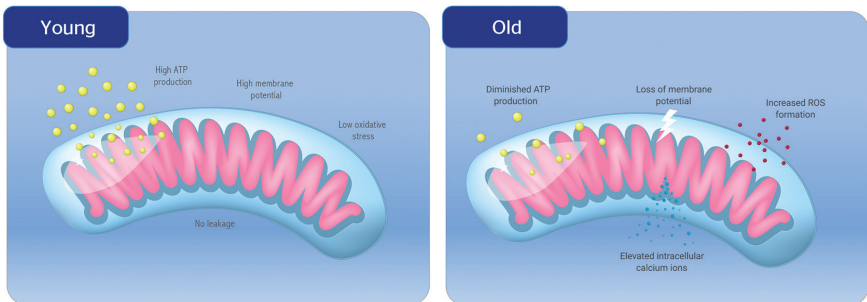
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## THE IMPORTANCE OF MITOCHONDRIAL HEALTH

Energy not only drives our daily activities—it ensures the health and longevity of our trillions of cells. Conversion of food molecules into usable fuel occurs in tiny energy factories called mitochondria. Historically dubbed in textbooks as the “energy powerhouses” and the “hub of energy metabolism,” these organelles do more than simply recharge our bodies—they control cellular survival mechanisms that affect our health.<sup>1-3</sup> Their promise and importance in medicine, upheld by the emerging scientific consensus, can be captured in simple words: **A cell with a flourishing network of mitochondria is generally a healthier one.**

## TWO SIDES OF MITOCHONDRIAL RENEWAL

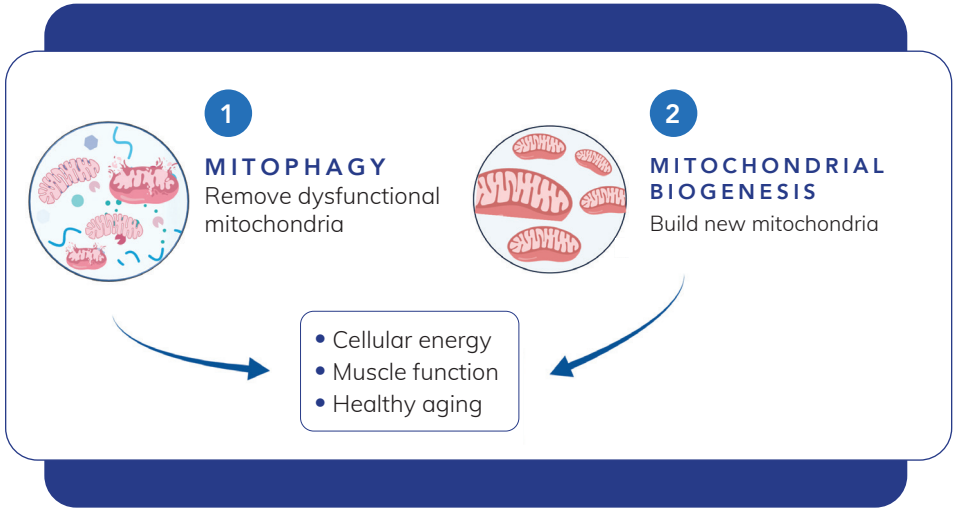
The life span of mitochondria is limited, in part, by frequent exposure to oxidative stress that occurs during normal energy metabolism. As they age, mitochondria produce less energy, and may even disturb normal cellular functions as they accumulate. Therefore, a cell’s energy output and overall health depends on mitochondrial removal and replacement. Supporting this recycling process is a newly recognized strategy for maintaining cellular health, particularly in muscles and other metabolically active tissues.<sup>3-5</sup>



Age-related changes in mitochondrial function involve cellular energy (ATP), reactive oxygen species (ROS) and membrane integrity.

By nature, these structures are delicate and short-lived, requiring continuous replacement. Old mitochondria are routinely destroyed through a process known as *mitophagy*. The recycled parts are salvaged to create new mitochondria (a process called *mitochondrial biogenesis*). This sustainable system hums when we’re young, but grows sluggish with time, weakening muscles and driving other hallmarks of aging.<sup>6,7</sup> For instance, in preclinical

models of aging, diminished mitophagy is linked to fatigue and decreased strength.<sup>9</sup> Sluggish mitophagy plays a newly appreciated etiological role in age-associated cellular decline, particularly in skeletal muscle.



In lifestyle medicine, emerging research on mitophagy has deepened our definition of a mitochondrial “picture of health” and how to achieve it. Popular modalities like caloric restriction, exercise and resveratrol supplementation support healthy aging, in part, through supporting or refurbishing mitochondrial networks.<sup>9,10†</sup> But until recently, safe and effective dietary agents that specifically target mitophagy have been sparsely studied.

## UROLITHIN A (UA) RESEARCH

In a 2016 study published in *Nature Medicine*, a first-in-class natural phenolic compound called urolithin A (UA) stimulated mitophagy in preclinical models and improved muscle function and exercise capacity in two different rodent models. UA also improved muscle strength and longevity in *C. elegans*, a preclinical paradigm of human aging, and increased endurance and exercise capacity in both young and old animals.<sup>11</sup> In agreement with these discoveries, four weeks of UA supplementation in healthy elderly subjects improved muscle mitochondrial gene expression and fatty acid oxidation.<sup>12</sup> UA supplementation resulted in improved mitochondrial function comparable to a 10-week aerobic exercise regimen, as measured by decreases in plasma acylcarnitine.<sup>13†</sup>

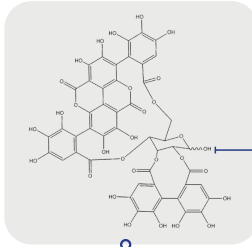
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## WHAT IS UROLITHIN A?

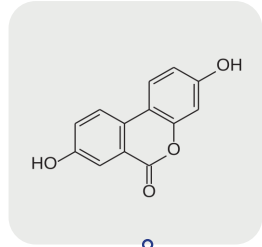
Urolithin A is a metabolite of ellagitannins and ellagic acid—major health-promoting constituents of pomegranates, nuts and berries. These unique polyphenols undergo metabolism by intestinal bacteria to small, highly absorbable metabolites called urolithins, which mediate the widely acclaimed health benefits of pomegranates and other ellagitannin-rich foods.<sup>11,12</sup>



Example: Punicalagin  
from pomegranate



Urolithins



Owing to variations in gut microbiota, not everyone can generate UA after consuming these foods.<sup>15</sup> Even with the right conversion “metabotype,” intestinal extraction of UA from ellagitannins is incomplete, unpredictable and impeded by aging, making oral UA—a universally absorbed molecule—appropriate for precise dosing and evidence-based use.<sup>16,17</sup> Not surprisingly, pure oral UA (as Mitopure) outperforms pomegranate in its pharmacokinetic profile, as shown in a trial of healthy adults whose plasma UA levels were six times higher following a single dose of Mitopure™ compared to an 8 oz. serving of pomegranate juice, one of the richest sources of ellagitannins.<sup>18</sup>



# RENUAL

MITOCHONDRIAL RENEWAL FEATURING  
MITOPURE™ UROLITHIN A

## Exclusive, first-to-market in healthcare practitioner channel\*

RENUAL offers a unique, novel combination of Mitopure™ Urolithin A, resveratrol and coenzyme Q<sub>10</sub> to promote mitochondrial biogenesis and renewal for:



MUSCLE  
FUNCTION<sup>†</sup>



CELLULAR  
ENERGY<sup>†</sup>

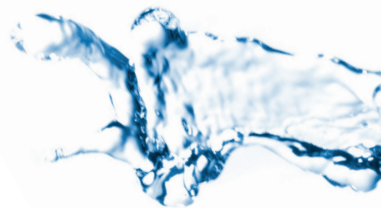


HEALTHY  
AGING<sup>†</sup>



## Patients can enjoy these benefits with novel RENUAL:

- Unique polyphenol metabolite
- Enhances mitochondrial renewal to support energy output/energy production<sup>†</sup>
- Powers healthy muscle function<sup>†</sup>
- Promotes healthy aging<sup>†</sup>



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## Supplement Facts

Take 2 capsules, 1-2 times daily, with or between meals.

**Serving Size: 2 Caplique® Capsules • Servings Per Container: 30**

**2 Caplique® Capsules Contain:**

Mitopure™ Urolithin A	<b>250 mg</b>
Trans-Resveratrol (from Japanese knotweed ( <i>Polygonum cuspidatum</i> ) extract (root))	<b>150 mg</b>
Coenzyme Q <sub>10</sub>	<b>60 mg</b>
Other ingredients: vegetable glycerin, vegetarian capsule (cellulose, water)	

**mitopure™**

Mitopure™ (proprietary Urolithin A) and the Mitopure™ logo are trademarks of Amazentis SA.

Patent [www.amazentis.com/patents](http://www.amazentis.com/patents)

Kaneka Q<sub>10</sub>® is a U.S. registered trademark of Kaneka Corporation.

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Certified



Gluten-Free



FREE FROM  
GMOs



Vegetarian

RENUAL

Quantity Order Code

60

RNL6

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## REFERENCES

1. Pizzorno J. *Integr Med (Encinitas)*. 2014 Apr; 13(2): 8–15.
2. Um J-H, Yun J. *BMB Rep*. 2017 Jun;50(6):299-307.
3. Duchen MR. *Diabetes* 2004 Feb; 53(suppl 1): S96-S102.
4. Roberts RG. *PLoS Biol*. 2017 Mar; 15(3): e2002338.
5. Ashrafi G, Schwarz TL. *Cell Death Differ*. 2013 Jan;20(1):31-42.
6. Marzetti E, Calvani R, Cesari M, et al. *Int J Biochem Cell Biol*. 2013;45(10):2288-2301.
7. Chen G, Kroemer G, Kepp O. *Front Cell Dev Biol*. 2020;8:200.
8. Sebastián D, Soriano E, Segalés J, et al. *EMBO J*. 2016;35(15):1677-1693.
9. Ruetenik A, Barrientos A. *Biochim Biophys Acta*. 2015 Nov; 1847(11): 1434–1447.
10. Menzies KJ. *J Biol Chem*. 2013 Mar 8; 288(10): 6968–6979.
11. Ryu D, Mouchiroud L, Andreux PA, et al. *Nature Medicine* 22:8, 2016;879-88.
12. Andreux PA, Blanco-Bose W, Ryu D, et al. *Nature Metabolism* 1:2019;595-603.
13. Andreux, P.A., Blanco-Bose, W., Ryu, D. et al. *Nat Metab* 1, 595–603 (2019).
14. Espín JC, Larrosa M, García-Conesa MT, Tomás-Barberán F. *Evid Based Complement Alternat Med*. 2013;2013:270418.
15. Heim KC. In: *Antioxidant Polymers: Synthesis, Properties, and Applications*. Cirillo G, Iemma F, eds. Taylor and Francis, c. 2012
16. García-Mantrana I et al. *Nutrients*. 2019 Oct; 11(10): 2483.
17. Cortes-Martin A, García-Villalba R, Gonzalez-Sarriás A, et al. *Food Funct*. 2018, 9:4100-4106.
18. Mitopure™ (Proprietary Urolithin A) Bioavailability in Healthy Adults (NOURISH). 2020. <https://clinicaltrials.gov/ct2/show/NCT04160312>

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