

# Sports Nutrition

While physical exercise is an important part of staying healthy, it can lead to the over production of reactive oxygen species and inflammation, which can increase susceptibility to injury and chronic fatigue. This can lead to joint pain, arthritis, DNA damage and premature aging.

Veri-te™ resveratrol is an ideal ingredient for use in sports nutrition products to slow down the atrophy of skeletal muscle fibers related to aging and exercise.<sup>1</sup>

## Sports performance is a balance between physical activity and a healthy diet

In addition to physical activity, dietary supplementation can be a key to top sports performance. Not only has resveratrol been investigated to support recovery and endurance for athletes and active lifestyles by being a potent antioxidant and anti-inflammation molecule, but it may also enhance muscle fiber strength and the rate of skeletal muscle ATP production during training.<sup>2</sup>



## Resveratrol helps to improve the muscle mitochondrial capacity

This study investigated if resveratrol supplementation with piperine - administered to increase resveratrol bioactivity - in combination with exercise training can improve the skeletal muscle mitochondrial capacity. The mitochondrial rate constant was used as a biomarker for the recovery of muscle oxidative capacity. The outcome was compared with a placebo (exercise training without supplementation).<sup>3</sup>

- Resveratrol and piperine supplementation increased the forearm skeletal muscle mitochondrial capacity 40% from baseline in trained forearms
- Resveratrol positively effects the mitochondrial rate constant and improves the recovery of muscle oxidative capacity

Randomized controlled trial (RCT), 16 young adults (19 - 20 yrs.), 500 mg/d + 10 mg/d piperine, 4 weeks

## Resveratrol may affect the redox status and lowers exercise-induced oxidative stress

Resveratrol and quercetin supplementation was investigated in athletes to determine their potential effect on reducing oxidative stress and inflammation. Blood from the participants was taken at their baseline activity level pre-exercise, immediately after exercise, and 1 hour post-exercise and analyzed for oxidative stress and inflammation biomarkers.<sup>4</sup>

- Resveratrol and quercetin supplementation reduced the immediate post-exercise increase in lipid peroxidation as represented by the oxidative stress marker F<sub>2</sub>-isoprostanes

RCT, 14 athletes (18 - 40 yrs.), 120 mg resveratrol + 225 mg quercetin/d, 6 days

## Resveratrol helps improve skeletal muscle functionality and support slowing down muscle loss

Participants performed training exercises and took either a placebo or resveratrol to study if resveratrol acts synergistically with exercise-induced signaling pathways to enhance cellular and molecular adaptations such as energy production in the muscle cells and muscle fatigue resistance.<sup>5</sup> This clinical study showed that resveratrol compared to a placebo:

- Enriched mitochondrial volume density and increased maximum oxygen consumption
- Increased knee extension strength by 8.5%
- Improved mean fiber area and a clear shift to larger fibers
- Enhanced the antioxidative capacity

RCT, 30 participants (65 - 80 yrs.), 500 mg + exercise training/d, 12 weeks

## References

1. Mankowski RT, Anton SD, Buford TW and Leeuwenburgh C. Dietary Antioxidants as Modifiers of Physiologic Adaptations to Exercise. *Med Sci Sports Exerc.* 2015; 47(9): 1857-1868.
2. Wicinski M, Leis K, Szyperski P, Weclawicz MM, Mazur E and Pawlak-Osinska K. Effet du resveratrol sur la performance physique: A review. *Sci Sport.* 2018; 33(4): 207-212.
3. Polley KR, Jenkins N, O'Connor P and McCully K. Influence of exercise training with resveratrol supplementation on skeletal muscle mitochondrial capacity. *Appl Physiol Nutr Metab.* 2016; 41(1): 26-32.
4. McAnulty LS, Miller LE, Hosick P, Utter AC, Quindry JC and McAnulty SR. Effect of resveratrol and quercetin supplementation on redox status and inflammation after exercise. *Appl Physiol Nutr Metab.* 2013; 38(7): 760-765.
5. Alway SE, Mccrory JL, Kearcher K, Vickers A, Frear B, Gilleland DL, Bonner DE, Thomas JM, Donley DA, Lively MW and Mohamed JS. Resveratrol Enhances Exercise-Induced Cellular and Functional Adaptations of Skeletal Muscle in Older Men and Women Editor's Choice. *J Gerontol A Biol Sci Med Sci.* 2017; 72(12): 1595-1606.

## resveratrol re-imagined™

Veri-te™ resveratrol is produced using an innovative yeast fermentation process.

This means our resveratrol is:

**PURE:** >98% pure *trans*-resveratrol

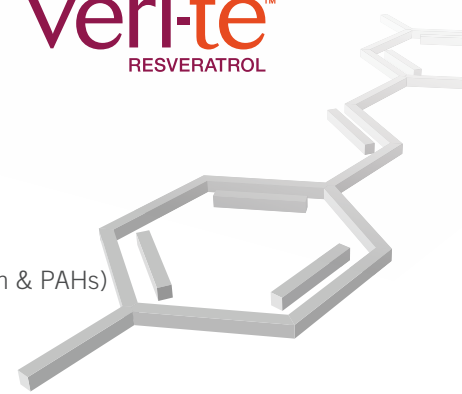
**SAFE:** free of contaminants (e.g. pesticides, emodin & PAHs)

**RELIABLE:** consistent batch to batch

**VERSATILE:** off-white, odorless and neutral taste

**SCALABLE:** large cGMP production capacity

**Veri-te™**  
RESVERATROL



## Our Products:

- Food Grade 98% purity for dietary supplements and foods and beverages\*
- Veri-Sperse™ 90% for when water dispersibility is needed
- Cosmetic-Grade resveratrol with >99% purity
- API Grade resveratrol product with DMF available

## Regulatory & Quality Status:

- EU Novel Foods approved, US self-affirmed GRAS, and other country approvals\*
- Made under cGMP and HACCP based food safety conditions
- Halal and Kosher certified resveratrol available

Evolve is committed to supporting clinical trials and research studies to further understand the important benefits of resveratrol on healthy living and aging.

## About us

Veri-te resveratrol is produced by Evolve, which was founded in 2004. Based on a strong research foundation, we focus on producing high-quality ingredients for use in applications for health, wellness and nutrition. We have a talented R&D team working on cutting edge science and technology to solve the supply chain issues of nature. Evolve is a pioneer and global leader in sustainable, fermentation-based ingredients. Visit [www.evolve.com](http://www.evolve.com) to learn more.

## For more information:

We have sales offices in the US and Europe, with distribution and regulatory approvals worldwide.\* Our technical team can advise on formulations and ideal combinations. Additionally, our marketing team can help you plan your marketing strategy for Veri-te resveratrol. Contact us to order free samples for evaluation.

Evolve's website: [www.evolve.com](http://www.evolve.com)

Veri-te resveratrol website: [www.veriteresveratrol.com](http://www.veriteresveratrol.com)

For general inquiries and customer service inquiries please email: [res@veriteresveratrol.com](mailto:res@veriteresveratrol.com)

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\*Contact Evolve for a full list of countries where approved by regulation