

Globally, it is estimated that approximately 1.3 billion people live with some form of vision impairment. However, 80% of all vision impairment is considered preventable.¹

Resveratrol has been shown in studies to have beneficial effects in supporting eye health.

Eye health, a vision for change

Poor eye health may in-part be caused by impaired blood-flow, inflammation, cell degradation, oxidative stress.¹⁻⁴ Resveratrol can be a key ingredient to supporting healthy vision and eye function by improving blood flow and counteracting the deleterious effects of oxidative stress.⁵



Resveratrol may improve blood flow and support eye health

Impaired blood flow and subsequent ischemic changes can lead to blurred or no vision in the center of the visual field. Resveratrol supplementation has been suggested to lead to anatomical restoration of retinal structure, improvement of blood flow and the suppression of pathological changes induced by low oxygen levels.⁶ A clinical study⁷ showed the benefits of resveratrol supplementation for eye health when compared to a placebo after only 1 hour of administration by:

- Increasing the choroidal thickness and thereby improving blood flow in the eye

34 healthy individuals (23-29 yrs), supplement with 100 mg resveratrol, single dose, choroidal thickness measured using optical coherence tomography (OTC) imaging

Resveratrol may protect retinal cells and reduce retinal degeneration

Resveratrol has been shown to lessen the gradual retinal cell degeneration caused by unbalanced blood sugar levels and associated inflammation.⁸ Resveratrol has also been reported to affect mitochondrial biogenesis and protect retinal cells against oxidative stress, light damage,^{9,10} and pathological changes such as increased vessel leakage.¹¹ A three year clinical trial with resveratrol¹² confirmed:

- Broad bilateral recovery in the ocular structure and function by improving contrast sensitivity and glare recovery

3 elderly individuals, supplement with 100 mg resveratrol daily, 2 - 3 years, clinical measurement of ocular structure, visual function

Resveratrol can reduce oxidative stress for improved eye health

Oxidative stress is thought to be a leading cause in poor eye health. Resveratrol has been shown to increase the levels of glutathione, which serves to protect against oxidative damage and also to play a role in preventing trabecular meshwork tissue abnormalities.¹³ An additional cell-culture study documented¹⁴ resveratrol:

- Prevents increased production of intracellular reactive oxygen species and affected-inflammatory markers (IL1, IL6, IL8, and ELAM-1), all biomarkers of oxidative stress
- Reduces cell death and supports normal cell proliferation

Cell-culture preclinical study, trabecular meshwork cells, 15 days, 25 μ M (5.7 mg/L) resveratrol, markers for inflammation, oxidative damage, and cellular aging (e.g. carbonylated proteins)

References

1. World Health Organization. Blindness and vision impairment prevention (2018)
2. Zheng Y *et al.* The worldwide epidemic of diabetic retinopathy. *Indian J Ophthalmol.* 2018; 60(5): 428-431
3. Pascolini D and Mariotti SP. Global estimates of - visual impairment: 2010. *Br J Ophthalmol.* 2012; 96(5): 4-8
4. Bola C *et al.* Resveratrol and the eye: activity and molecular mechanisms. *Graefes Arch Clin Exp Ophthalmol.* 2014; 252; 699-713.
5. Abu-Amero KK *et al.* Resveratrol and Ophthalmic Diseases. *Nutrients.* 2016; 8 (4): 200-210.
6. Nagineni CN *et al.* Resveratrol suppresses expression of VEGF by human retinal pigment epithelial-cells: Potential nutraceutical for age-related macular degeneration. *Aging Dis.* 2014; 5(2): 88-100.
7. Wang S *et al.* Effect of Resveratrol-Based Nutritional Supplement on Choroidal Thickness: A Pilot Study. *Curr Eye Res.* 2016; 41: 1339-1345.
8. Losso JN *et al.* Trans-Resveratrol inhibits hyperglycemia-induced inflammation and connexin down regulation in retinal pigment epithelial cells. *J Agric Food Chem.* 2010; 58: 8246-8252.
9. Sheu SJ *et al.* Resveratrol stimulates mitochondrial bioenergetics to protect retinal pigment epithelial cells from oxidative damage. *Investig Ophthalmol Vis Sci.* 2013; 54: 6426-6438.
10. Kubota S. Resveratrol prevents light-induced retinal degeneration via suppressing activator protein-1 activation. *Am J Pathol.* 2010; 177: 1725-1731.
11. Kim YH *et al.* Resveratrol blocks diabetes-induced early vascular lesions and vascular endothelial growth factor induction in mouse retinas. *Acta Ophthalmol.* 2012; 90: e31-e37.
12. Richer S *et al.* Resveratrol based oral nutritional supplement produces long-term beneficial effects on structure and visual function in human patients. *Nutrients.* 2014; 6: 4404-4420.
13. Doganay S *et al.* The effect of resveratrol in experimental cataract model formed by sodium selenite. *Curr Eye Res.* 2006; 31: 147-153.
14. Luna C *et al.* Resveratrol prevents the expression of glaucoma markers induced by chronic oxidative stress in trabecular meshwork cells. *Food Chem Toxicol.* 2009; 47: 198-204.

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

Our Products:

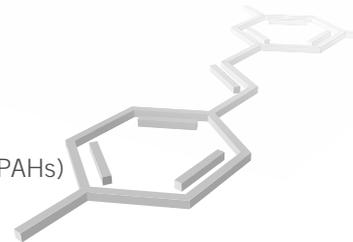
- Food Grade 98% purity for dietary supplements and foods and beverages*
- Veri-Sperse™ 90% for when water dispersibility is needed
- Cosmetic-Grade resveratrol with >99% purity
- API Grade resveratrol product with DMF available

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.

Veri-te™
RESVERATROL



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 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

Veri-te resveratrol website: www.veriteresveratrol.com

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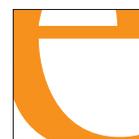
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Evolve (U.S.A./R.O.W.): +1.800.250.1032

Evolve (Europe/R.O.W.): +41.61.485.2099



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