

Bone Health

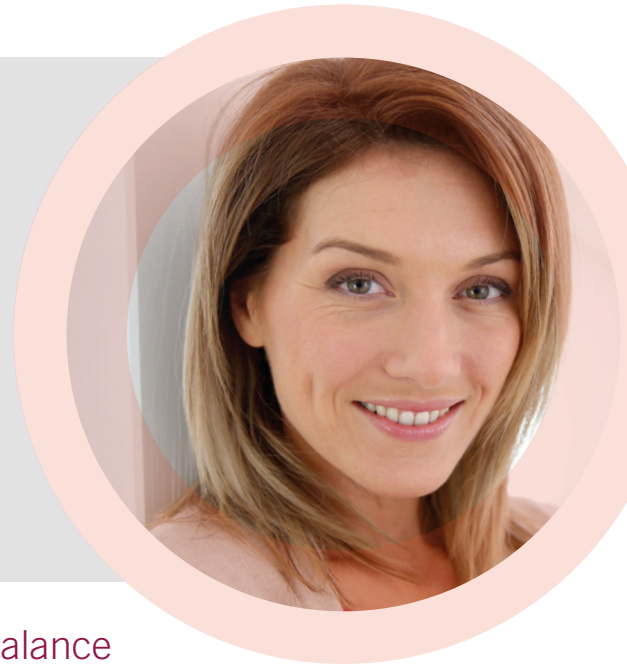
One in three consumers are concerned about bone health and are looking for ways to support their bones.*

Besides supporting and stabilizing healthy joints,⁴ resveratrol has been shown to have beneficial effects on bone density.⁶⁻⁸ It supports bone health in a way that synergistically complements the actions of vitamin D and calcium⁵ making it a key addition to bone health products.

*Source: 2015 Canadian Report, Global and Regional Mega-Trends: Understanding Consumer Attitudes and Behaviours in Health and Wellness.

Bone health, a matter of balance

The delicate balance between bone formation and bone resorption is lost with aging, when resorption overtakes formation. This process is further exacerbated by obesity-related low-grade inflammation and hormonal changes characteristic of menopause.¹⁻³



Resveratrol supports the balance between bone resorption and bone formation

Besides being known for supporting healthy joints⁴, resveratrol, unlike many supplements targeting bone health, promotes the creation of new bone-forming cells.⁵ Moreover, in a recent randomized, placebo-controlled study⁶, supplementation with Veri-te™ resveratrol led to a significant increase in bone-specific alkaline phosphatase (BAP), an important biomarker of bone formation.

24 healthy overweight men, 4 weeks, 500 mg Veri-te resveratrol daily, BAP

Resveratrol is shown to increase spinal bone density

In a follow up to the above study⁷, conducted with Veri-te resveratrol, the results show:

- A significant increase in BAP
- A dose-dependent increase in spinal bone mineral density (BMD), with a significant effect observed for the 1,000 mg dose
- That resveratrol supplementation may affect bone primarily by stimulating formation or mineralization

66 overweight men with unbalanced blood pressure, blood glucose and blood lipid levels, 16 weeks, 150 or 1,000 mg Veri-te resveratrol daily, BAP and lumbar spine bone mineral density

Resveratrol supports bone health in people with unbalanced blood glucose levels

A double-blind, randomized placebo-controlled trial⁸ investigated the effect of resveratrol on bone fracture risk and documented:

- Supplementation with 500 mg resveratrol prevented bone density loss, particularly in people with underlying health concerns prior to supplementation

192 people with unbalanced blood glucose levels, 6 months, 40 or 500 mg resveratrol daily, bone mineral density, BAP, serum calcium, phosphorus and vitamin D

Veri-te™ resveratrol reduces risk of bone fracture in menopausal women

Evolva co-funds RESHAW (Resveratrol Supporting Healthy Aging in Women), the largest and longest resveratrol study ever conducted in post-menopausal women.⁹ With a focus on bone health, the interim evaluation after 12 months of this double blind, placebo-controlled crossover study revealed:

- Improvement in the BMD measured in the lumbar spine and in the neck of the femur
- 36% reduction in hip fracture risk and a 9% reduction in the 10 year risk of a major osteoporotic fracture

125 post-menopausal women, 24 months, 75 mg Veri-te resveratrol twice daily, cardio-metabolic, brain and bone health parameters as well as cognitive task performance

References

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3. Ginaldi L, Di Benedetto MC and De Martinis M. Osteoporosis, inflammation and ageing. *Immunity & Ageing.* 2005; 2: 14.
4. Khojah HM, Ahmed S, Abdel-Rahman MS and Elhakeim EH. Resveratrol as an effective adjuvant therapy in the management of rheumatoid arthritis: a clinical study. *Clin Rheumatol.* 2018; 37(8): 2035-2042.
5. Ornstrup MJ, Harsløf T, Sørensen L, Stenkjær L, Langdahl BL, Pedersen SB. Resveratrol Increases Osteoblast Differentiation In Vitro Independently of Inflammation. *Calcif Tissue Int.* 2016, Aug; 99(2): 155-63.
6. Poulsen MM, Ornstrup MJ, Harsløf T *et al.* Short-term resveratrol supplementation stimulates serum levels of bone-specific alkaline phosphatase in obese non-diabetic men. *J Funct Foods.* 2014; 6: 305–310.
7. Ornstrup MJ, Harsløf T, Kjaer TN *et al.* Resveratrol increases bone mineral density and bone alkaline phosphatase in obese men: a randomized placebo-controlled trial. *J Clin Endocrinol Metab.* 2014; 99(12): 4720–4729.
8. Feng J, Liu S, Ma S *et al.* Protective effects of resveratrol on postmenopausal osteoporosis: regulation of SIRT1-NF-kB signaling pathway. *Acta Biochim Biophys Sin.* 2014; 46: 1024–1033.
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resveratrol re-imagined™

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

This means our resveratrol is:

PURE: >98% pure *trans*-resveratrol

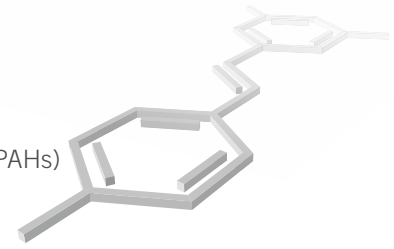
SAFE: free of contaminants (e.g. pesticides, emodin & PAHs)

RELIABLE: consistent batch to batch

VERSATILE: off-white, odorless and neutral taste

SCALABLE: large cGMP production capacity

Veri-te™
RESVERATROL



Our Products:

- Veri-te™ Food Grade 98% purity for dietary supplements and foods and beverages*
- Veri-Sperse™ 90% for when increased bioavailability and CWD are important
- Veri-te™ Aqua for liquid applications
- Cosmetic-Grade resveratrol with
- API Grade resveratrol product with DMF available

Regulatory & Quality Status:

- Food Grade 98% purity for dietary supplements and foods and beverages*
- Made under cGMP and HACCP based food safety conditions
- Halal and Kosher certified resveratrol available

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

About Evolva:

Veri-te™ resveratrol is produced by Evolva, a Swiss biotech company focused on the research, development and commercialization of products based on nature. We have leading businesses in Flavors and Fragrances, Health Ingredients and Health Protection. Evolva's employees, half of which are women, are dedicated to make the best products that can contribute to health, wellbeing and sensory enjoyment. Find out more at www.evolva.com.

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.

Evolva's website: www.evolva.com

Veri-te™ resveratrol website: www.veriteresveratrol.com

For general inquiries and customer service inquiries please email: res@veriteresveratrol.com

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Or phone us at:

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

Evolva (Europe/R.O.W.): +41.61.485.2000

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

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