



Endolive

Natural Cardiovascular Protection
Olive Fruit Extract



Endolive

by Natac

BLOOD PRESSURE, CARDIAC FUNCTION & HDL CHOLESTEROL

The Burden of Cardiovascular Disease

Cardiovascular disease (CVD) is a significant, ever-growing worldwide problem. Globally, CVD accounts for 31% of all deaths and, 80% of them occur in developing nations. Not only is it a prime cause of mortality, but it is also the **leading reason for disability-adjusted life years lost globally.**

Cardiovascular Risks Factors: Behavioral risk factors (unhealthy diet, physical inactivity, tobacco use, and harmful use of alcohol) may show up in individuals as high blood pressure, elevated blood glucose and lipids, and overweight and obesity.

Proven Efficacy

Preclinical Approach: Our preclinical studies prove **Endolive's** potential cardiovascular benefits based on the observed effects on hypertension, arterial function and remarkably improved cardiac function in hypertensive rats.



1 Endolive lowered systolic blood pressure in hypertensive rats

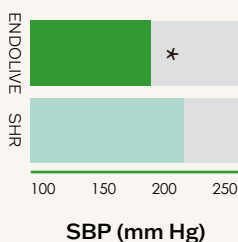


Figure 1. Systolic blood pressure (SBP) in spontaneously hypertensive rats (SHR) and spontaneously hypertensive rats treated with Endolive (SHR+Endolive) after 8 weeks of treatment. * $p < 0.05$ vs. SHR.

Endolive significantly lowers elevated systolic blood pressure in hypertensive rats.

Hypertension is one of the significant risk factors for cardiovascular disease. This generates functional and structural changes in the arterial wall and target organs (heart, kidney, brain).

2 Endolive preserved arterial function in hypertensive rats

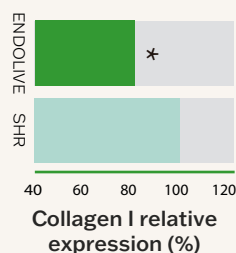


Figure 2. Collagen I protein expression in spontaneously hypertensive rats (SHR) and spontaneously hypertensive rats treated with Endolive (SHR+Endolive) after 8 weeks of treatment. * $p < 0.05$ vs. SHR.

Endolive reduces aortic collagen I protein expression in hypertensive rats.

The accumulation of collagen induces fibrosis which can lead to aortic wall stiffness and arterial dysfunction. Therefore, it has been postulated as one of the most relevant vascular changes involved in the progression of hypertension.

3 Endolive improved cardiac function in hypertensive rats

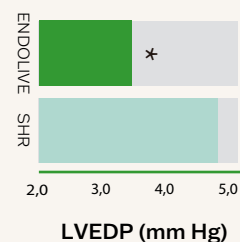
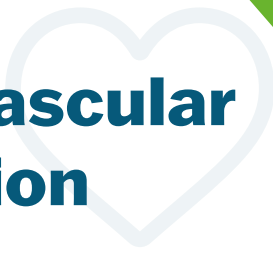


Figure 3. Left ventricle end-diastolic pressure (LVEDP) in spontaneously hypertensive rats (SHR) and spontaneously hypertensive rats treated with Endolive (SHR+Endolive) after 8 weeks of treatment. * $p < 0.05$ vs. SHR.

Endolive improves cardiac function by decreasing elevated left ventricular end-diastolic pressure in hypertensive rats.

Not only vessels but also the heart is a prime target for hypertensive damage. Uncontrolled hypertension accelerates the injury, which results in eventual heart dysfunction.

Natural Cardiovascular Protection



Challenges

Endolive's efficacy in treating cardiovascular disease was verified through randomized controlled trials in human volunteers: It was administered to 30 subjects at a dosage of 200mg per day (100 mg soft-gel capsules twice daily) for eight weeks. The most representative results are summarized below:

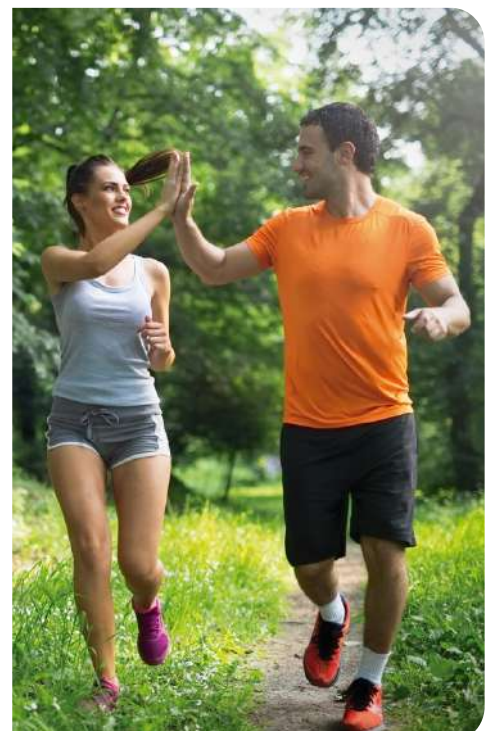
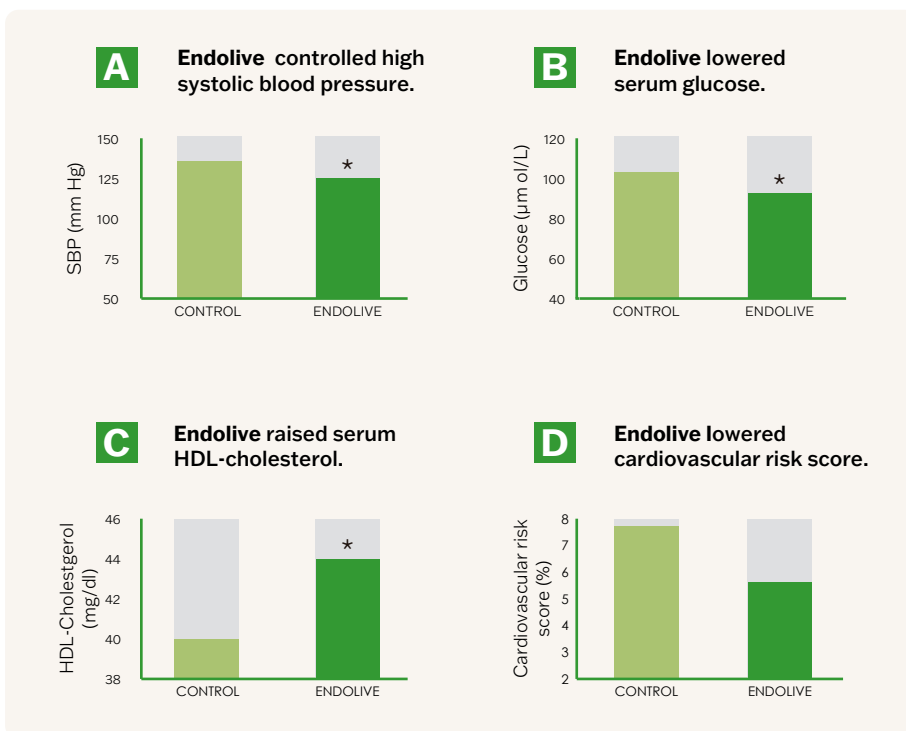
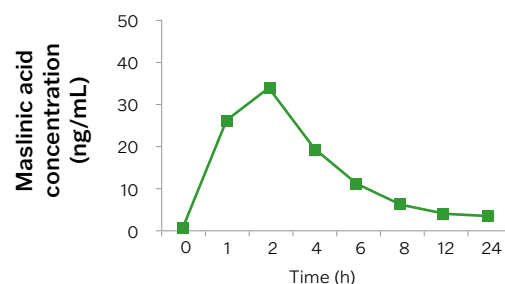
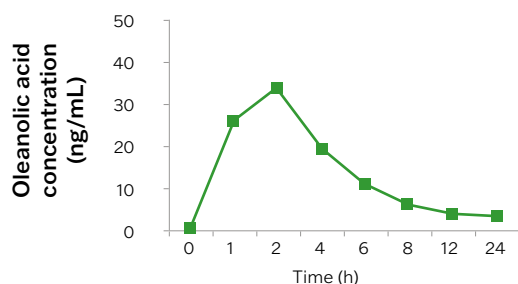


Figure 4. Systolic blood pressure (SBP) (A), Serum glucose (B), Serum HDL-Cholesterol (C), and Cardiovascular risk score (Framingham Risk Score - 10-year risk prediction) (D) in Control and Endolive-treated subjects after eight weeks of treatment. * $p < 0.05$ vs Control.

The effectiveness of **Endolive** was proven in conferring cardiovascular protection by decreasing relevant cardiovascular risk factors.

Pharmacokinetics

Endolive's pharmacokinetic profile has been defined in human volunteers. Its bioavailability has been reported in terms of oleanolic acid and maslinic acid. In addition, significant amounts of triterpenes were found in healthy subjects when **Endolive** was administered acutely at a dosage of 200mg.



References: Valero-Muñoz et al., *Mol. Nutr. Food Res.*, 2014, Stewart et al., *JRSM Cardiovasc Dis.* 2017, WHO. Cardiovascular diseases (CVDs). 2016, Mahmood et al., *The Lancet* 2014, Wilson et al. *Circulation* 1998, Yusuf et al. *The Lancet* 2004.

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Studies performed by Natac indicate that Endolive:

- Lowers serum glucose
- Increases HDL
- Controls systolic blood pressure
- Improves cardiac function

➤ **Reduces cardiovascular risk**

Endolive fulfills EFSA's claim on olive polyphenols:

"Olive oil polyphenols contribute to the protection of blood lipids from oxidative stress."

Technical Information

Specifications

Patented olive fruit extract containing:

- 15% Oleonic acid
- 0,5% Tyrosol
- 10% Maslinic acid
- 5% Hydroxytyrosol

Dosage

200 mg/day

Suggested galenic form

Softgel capsules formulated with virgin olive oil as carrier. 2 capsules per day.

Patents

EP3007687; US2016143930; CA2915164; CN105530922; JP2016521717; WO2014198842; EP2305783; US8361518; NZ590649; MX2011000786; JP5512671; ES2332977; CA2731917; AU2009273171.

THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION.
THIS PRODUCT IS NOT BEEN INTENDED TO DIAGNOSE, TREAT, CURE, OR PREVENT ANY DISEASE.



Natac develops and manufactures sustainably natural ingredients used in food supplements, feed, pet food, as well as in functional foods, and as natural active pharmaceutical ingredients, mainly plant extracts and functional lipids.



Headquartered in Spain, yet internationally present with the opening of new markets globally, while maintaining the strategic location of our manufacturing, R&D and Innovation Unit, and Quality Department that ensures compliance with European most rigorous standards.

[Learn more at natacgroup.com](http://natacgroup.com)

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