



## Resveratrol Helps Suppress Generation of Free Radicals, Inflammatory TNF in First Prospective Human Trial

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Resveratrol, a popular plant extract shown to prolong life in yeast and lower animals due to its anti-inflammatory and antioxidant properties, appears also to suppress inflammation in humans, based on results from the first prospective human trial of the extract conducted by University at Buffalo endocrinologists.

Results of the study were published online July 29 by the *Journal of Clinical Endocrinology & Metabolism*.<sup>(1)</sup>

Resveratrol is a compound produced naturally by several plants when under attack by pathogens such as bacteria or fungi, and is found in the skin of red grapes and red wine. It also is sold as a [nutritional supplement](#) derived primarily from Japanese knotweed (*Polygonum cuspidatum* – "Hu Zhang" in Chinese medical tradition) .

### Believed to Support Increased Expression of 'Longevity Gene'

[Husam Ghanim, PhD](#), UB research assistant professor of medicine and first author on the study, notes that resveratrol has been shown to prolong life and to reduce the rate of aging in yeast, roundworms and fruit flies, actions thought to be affected by increased expression of a particular gene associated with longevity.

The compound also is thought to play a role in insulin resistance as well, a condition related to oxidative stress, which has a significant detrimental effect on overall health.

"Since there [were] no data demonstrating the effect of resveratrol on oxidative and inflammatory stress in humans," says UB Professor of Medicine [Paresh Dandona, MD, PhD](#), senior author on the study:

- "We decided to determine if the compound reduces the level of oxidative and inflammatory stress in humans.
- "Several of the key mediators of insulin resistance also are pro-inflammatory, so we investigated the effect of resveratrol on their expression as well."

The study was conducted at Kaleida Health's Diabetes-Endocrinology Center of Western New York, which Dr. Dandona directs. A nutritional supplement containing 40 mg of resveratrol was used as the active product.

Twenty participants were randomized into two groups of 10: one group received the supplement, while the other group received an identical pill containing no active ingredient. Participants took the pill once a day for six weeks. Fasting blood samples were collected at the start of the trial and at weeks one, three and six.

### Generation of Various Pro-Inflammatory Factors Was Suppressed

Results showed that:

- Resveratrol suppressed the generation of free radicals, or reactive oxygen species - unstable molecules known to cause oxidative stress and release proinflammatory factors into the blood stream, resulting in damage to the blood vessel lining.

- Blood samples from persons taking resveratrol also showed suppression of the inflammatory protein tumor necrosis factor (TNF) and other similar compounds that increase inflammation in blood vessels and interfere with insulin action, causing insulin resistance and the risk of developing diabetes.

These inflammatory factors, in the long term, have an impact on the development of type 2 diabetes, aging, heart disease and stroke, noted Dandona.

Blood samples from the participants who received the placebo showed no change in these pro-inflammatory markers.

While these results are promising, Dandona added a caveat: The study didn't eliminate the possibility that something in the [*Polygonum cuspidatum*] extract other than resveratrol was responsible for the anti-inflammatory effects.

"The product we used has only 20% resveratrol, so it is possible that something else in the preparation is responsible for the positive effects. These agents could be even more potent than resveratrol. Purer preparations now are available and we intend to test those."

The study was supported in part by grants to Dandona from the National Institutes of Health and the American Diabetes Association.

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1. See "[An anti-inflammatory and reactive oxygen species suppressive effect of an extract of \*Polygonum Cuspidatum\* containing resveratrol.](#)" The paper also has been selected for inclusion in *Translational Research in Endocrinology & Metabolism*, a new online anthology that highlights the latest clinical applications of cutting-edge research from the journals of the Endocrine Society.

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