

New evidence that egg white protein may help high blood pressure

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Scientists reported new evidence today that a component of egg whites—already popular as a substitute for whole eggs among health-conscious consumers concerned about cholesterol in the yolk—may have another beneficial effect in reducing blood pressure. Their study was part of the 245th National Meeting & Exposition of the American Chemical Society (ACS).

"Our research suggests that there may be another reason to call it 'the incredible, edible egg,'" said study leader Zhipeng Yu, Ph.D., of Jilin University. "We have evidence from the laboratory that a substance in egg white—it's a peptide, one of the building blocks of proteins—reduces [blood pressure](#) about as much as a low dose of Captopril, a high-blood-pressure drug."

Yu and colleagues, who are with Clemson University, used a peptide called RVPSL. Scientists previously discovered that the substance, like the family of medications that includes Captopril, Vasotec and Monopril, was an angiotensin-converting-enzyme (ACE) inhibitor. It has a powerful ability to inhibit or block the action of ACE, a substance produced in the body that raises blood pressure.

They set out to further document RVPSL's effects, using laboratory rats that develop high blood pressure and are stand-ins for humans in such early research on hypertension. The results of feeding the substance were positive, showing that RVPSL did not have apparent toxic effects and lowered blood pressure by amounts comparable to low doses of

Captopril.

"Our results support and enhance previous findings on this topic," Yu said. "They were promising enough to move ahead with further research on the effects of the egg white peptide on human health."

Yu noted that the research was done with a version of the peptide that was heated to almost 200 degrees Fahrenheit during preparation—less than the temperatures typically used to cook [eggs](#). He cited evidence from other research, however, that egg whites may retain their beneficial effects on blood pressure after cooking.

One, for instance, published in the ACS' *Journal of Agricultural and Food Chemistry*, showed that fried egg protein, cooked at high temperatures, actually showed greater ability to reduce blood pressure than eggs boiled at 212 degrees F.

Yu believes that egg white peptides, either in eggs or as a supplement, could become useful as an adjunct to high-blood-pressure medication. For now, he said people with high blood pressure should consult their health care provider before making any changes.

And he noted that findings about egg white and high blood pressure add to the emerging nutritional image of eggs. Once regarded as a food to avoid in a healthy diet, studies in recent years have concluded that many people can eat eggs without raising their blood [cholesterol](#) levels, benefiting from an inexpensive food low in calories and rich in protein, vitamins and other nutrients.

More information: Abstract

The purpose of the work was to evaluate cell viability of egg white protein peptide RVPSL (Arg-Val-Pro-Ser-Leu), which had been

characterized previously in vitro as a potent inhibitor of angiotensin-converting enzyme (ACE), and to investigate antihypertensive effect in spontaneously hypertensive rats. In the current work, cell viability of RVPSL was measured by MTT method. Subsequently, in vivo antihypertensive effect of RVPSL orally administered was evaluated by the tail-cuff method. The systolic blood pressure and the diastolic blood pressure of rats were measured before administration and also 5, 10, 15, and 20 h post-administration. The results showed that RVPSL at 6 mg/ml was not toxic to HepG2 cells. Our founding also indicated that short-term antihypertensive effect of RVPSL administration at a dose of 50 mg/kg b w was comparable to Captopril at 10 mg/kg b w dose. Therefore, egg white protein peptide may be useful to prevent or treat hypertension.

Provided by American Chemical Society

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