Nutrition News You Can Use: Resveratrol shows beneficial metabolic effects in obese men

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After years of conflicting positive and negative findings about the polyphenol resveratrol (found in peanuts, grapes, red wine, mulberries and some more exotic vegetables) based on cell cultures and animal studies – conflated with media hype about its alleged role as a "fountain of youth", we may be closer to some hard human evidence.

Researchers from the Netherlands and Switzerland reported in the November issue of Cell Metabolism* that modest daily doses of resveratrol are able to trick the body systems of obese men into thinking that they are on a calorie restricted diet or undertaking endurance training and thus produce some of the benefits that weight reduction and exercise might bring. This sounds too good to be true, but it just might be.

The trial was small – only 11 men – but it was a well-conducted, randomized, double-blind, cross-over study. The obese (weight around 100kg) but otherwise healthy men took placebo or 150 mg of resveratrol (a much lower dose than used in previous animal studies) as a supplement for 30 days, followed by a 30 day wash out period and then switched to the other treatment option for another 30 days. Other resveratrol sources in the diet were excluded.

Researchers looked for changes in biomarkers indicating improved metabolic health. They found them in the group taking the resveratrol supplements, showing that the resveratrol was being metabolized in their cells and changing the way they functioned. In summary, body mass and physical activity levels remained the same in both groups, but beneficial changes occurred in the group taking the resveratrol supplements, including:

- Significantly reduced sleeping and resting metabolic rate
- Improved energy synthesis in muscle cells
- Decreased circulating glucose and insulin levels, suggesting improved insulin sensitivity
- Lowered triglyceride levels and lipid accumulation in the liver
- Reduced inflammation markers in plasma
- Lowered systolic (by 5mmHg) and arterial blood pressure, possibly by stimulating blood vessel cells relaxation

The research team concluded, "Our data show that like calorie restriction, resveratrol supplementation lowers energy expenditure and improves metabolic profile as well as general health parameters." Importantly, the data "suggest that resveratrol has the potential to improve metabolic health in subjects at risk for developing the metabolic syndrome."

The indication from this study is that there is something important for human health in the resveratrol story after all. It is preliminary data. Studies in humans need to be bigger and longer to ascertain the effects of resveratrol metabolism in the body over time. But it is a good start and could shine a bright light on peanuts as an everyday dietary source of this intriguing chemical. This is not a "magic bullet" story, but it does add weight to the recommendation to include peanut products as part of everyday healthy diets because they contain many things that are beneficially bioactive. This research suggests that resveratrol may turn out to be one of their more interesting constituents.

* Timmers S et al. “Calorie Restriction-like Effects of 30 Days of Resveratrol Supplementation on Energy Metabolism and Metabolic Profile in Obese Humans”. Cell Metabolism 2011; 14: 612-622.