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Resveratrol May Help with Obesity Health

By Greg Arnold, DC, CSCS, June 28, 2010, abstracted from "Resveratrol regulates human adipocyte number and function in a Sirt1dependent manner" in the June 2010 issue of the American Journal of Clinical Nutrition

Link - http://www.nowfoods.com/079775.htm

In 2004, the National Health and Nutrition Examination Survey (NHANES) found that over 66% of Americans are overweight or obese and 32% of Americans are obese. Among children in the U.S., the 2006 NHANES showed the prevalence of obesity has increased for children aged 2–5 years from 5.0% to 12.4%, children aged 6–11 years saw an increase from 6.5% to 17.0%, and children aged 12–19 years saw an increase from 5.0% to 17.6% (1). The CDC defines overweight as having a BMI between 25 and 29.9 kg/m2 and obese has having a BMI greater than 30 kg/m2 (2).

A significant contributor is increased calorie consumption, with Americans in the year 2000 consuming 2,700 calories per day, 24.5% higher than in the 1970's (3). This has resulted in a population of Americans that is frighteningly unhealthy. This increase in overweight and obese Americans causes an estimated 365,000 deaths per year are due to obesity (4) at a cost of $75 billion per year (5). Obesity is risk factor for heart disease (6) which costs our healthcare system $448 billion per year (7), Type 2 diabetes (8) which costs our healthcare system $174 billion per year (9), and even dementia (10) which costs our healthcare system over $100 billion per year (11).

Now a new study (12) has found that resveratrol, an antioxidant found in grapes, may help control fat cell activity and thereby help with the toxins that get excreted from adipose tissue that contribute to the adverse health effects of obesity (13). Resveratrol has been shown to help maintain liver health and blood sugar health by activating a protein called sirtuin 1 (14) which plays a role in lifespan (15). In the study, researcher exposed human fat cells to either a placebo or resveratrol (ranging from 10 micromoles/Liter to 100 micromoles/Liter) for 60 hours.

By the end of the 60 hour period, fat cell division in the placebo group was 137% higher than the resveratrol group (100 micromoles/L), with fat cell division increasing by 380% in the placebo group compared to 160% increase in the resveratrol group. There was also a 45% decrease in maturation of the fat cells by resveratrol compared to the placebo group at 100 micromoles/Liter, with even 10 micromoles/Liter decreasing fat cell maturation by 6%.

The significance of resveratrol's ability to slow down both fat cell division and fat cell maturation is that this process is a hallmark of obesity progression. Past research has focused on preventing this division and maturation primarily through calorie restriction (15) as well as alternative treatments like guggulsterone supplementation (16).

It is this ability to prevent fat cell division and maturation that has enabled resveratrol to promote longevity in simple organisms like the bacteria C. Elegans and the fruit fly (Drosophila Melanogaster) but even more complex animals like fish (Nothobranchius furzeri) (17, 18, 19).

For the researchers, "our findings open up the new perspective that resveratrol-induced intracellular pathways could be a target for prevention or treatment of obesity-associated endocrine and metabolic adverse effects."

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