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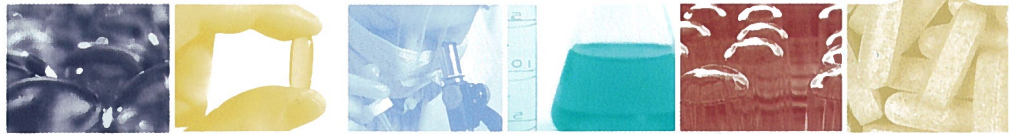


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## Oligonol: Small is Beautiful

By David A. Mark, PhD

**P**olyphenols come in all sizes, and that is the problem. The larger molecules, which make up much of the polyphenol content of many so-called “superfruits,” are too large to be absorbed. While they are potent test-tube antioxidants, their lack of absorption disqualifies any claim for systemic benefits. Smaller molecules of the polyphenol subset referred to as “flavanols” have somewhat better absorption and demonstrable health benefits in humans. However, we need to get past thinking of them as “antioxidants” in order to understand their real mechanisms of action.

### The Polyphenol Paradox

Andrew Waterhouse, professor at the University of California, Davis, recently stated that free-radical trapping (i.e., antioxidant activity) is not due to dietary polyphenolics. His point, reiterated by some other renown experts in the field, is that compared to the circulating amounts of known antioxidants (such as glutathione, vitamin C, vitamin E and carotenoids), the amounts of polyphenols in the blood appear at very low concentrations. Therefore, their bioactivity—evidenced by numerous clinical trials—is unrelated to antioxidant function.

For these reasons, test-tube antioxidant analyses that go by abbreviations such as ORAC, FRAP and TEAC are meaningless: the fact that a compound is absorbed in a test tube says nothing about whether it would be absorbed in the blood.

Even animal research is insufficient to support a human benefits claim since the bioavailability of polyphenols differs from species to species. So it's time to move past misleading claims of high antioxidant activity—the meaningless race to claim the highest ORAC value—and start providing evidence that compounds are adequately absorbed in the body and have relevant clinical outcomes.

### Oligonol: Addressing the Absorption Problem

The challenge of addressing the true “absorption problem” of polyphenols is what inspired the development of Oligonol, a proprietary extract of

lychee fruit and green tea leaves. Oligonol is a flavanol—a subset of polyphenols found in foods such as dark chocolate, red wine, green tea and some of the dark-colored fruits including lychee. The problem is that many flavanols are too large to be efficiently absorbed with bioavailability being less than one percent for the larger molecules.

The production of Oligonol entails subjecting such a compound to a patented process that results in over 40 percent yield of flavanol monomers, dimers and trimers (shorter chain molecules that are more easily absorbed). A clinical study presented at the annual International Congress of Natural and Integrative Medicine in Sapporo, Japan demonstrated that Oligonol increased the polyphenol content in the blood significantly more than unprocessed lychee extract.

### The Clinical Case for Oligonol

Beyond simply establishing the superior absorption of Oligonol in the blood (rather than in a test tube), the developers of the compound went on to conduct a number of clinical studies to demonstrate its bioefficacy for a variety of functions. Some of the key studies are summarized below:

- **Reduction of Visceral Fat:** Healthy subjects consumed either Oligonol or a placebo for a period 10 weeks. The treated group experienced a 12 percent reduction in visceral fat, a three centimeter reduction in waist circumference and a decrease in body weight as compared to baseline levels.<sup>1</sup>

- **Support of the Body's Normal Response to Inflammation:** In a randomized, placebo-controlled, four-week trial of 19 subjects, Oligonol treatment lowered the inflammatory circulating compounds (cortisol, IL-6 and IL-1 $\beta$ ).<sup>2</sup>

- **Reduction of Post-Exercise Fatigue:** In a cross-over study, 47 college athletes consumed either Oligonol or a placebo for two 26-day treatment intervals with a nine-day washout. The study found that after consuming Oligonol, the subjects reported feeling less pain, less fatigue and faster fatigue recovery.<sup>3</sup>

- **Reduction of Wrinkles:** After a 12-

week study of women aged 26-60 taking Oligonol, researchers observed a gradual reduction in the number and area of freckles, a decrease of wrinkle length and depth, and an improvement of general skin texture (including increased skin smoothness and resiliency). The older study subjects experienced more significant results than the younger sub-group.<sup>4</sup>

- **Maintenance of Normal Uric Acid Levels:** In a study of six healthy male volunteers, Oligonol significantly decreased uric acid excretion and clearance while reducing the concentration of uric acid in the blood. These results suggest that Oligonol may be help individuals at risk of gout to maintain normal uric acid levels.<sup>5</sup>

### Safety

Oligonol has undergone animal and bacterial genotoxicity safety testing<sup>6</sup> and has been the subject of a Phase I safety study<sup>7</sup>. Oligonol has been accepted as a New Dietary Ingredient by the FDA and has attained the self-affirmed GRAS (generally recognized as safe) status. In 2008, it was honored with the Nutracon Award as the top evidence-based ingredient of the year.

### References:

1 Nishihira J, et al. Amelioration of abdominal obesity by low-molecular-weight polyphenol (Oligonol) from lychee. *J Funct Food* (2009).

2 Lee JB, Shin YO, Min YK, Yang HM. The effect of Oligonol intake on cortisol and related cytokines in healthy young men. *Nutr Res Practice* 2010;4:203-207.

3 Ohno, H, et al. The supplementation of Oligonol, the new lychee fruit-derived polyphenol converted into a low-molecular form, has a positive effect on fatigue during regular track-and-field training in young athletes. *Adv Exerc Sports Physiol* 2008;13:93-99.

4 Amino Up Chemical. Clinical Study on the Improvement Effect of Oligonol in Skin. Presented at the AHCC and Oligonol Symposium (2007).

5 Moriwaki, Y. et al. Effects of Oligonol, an oligomerized polyphenol formulated from lychee fruit, on serum concentration and urinary excretion of uric acid. *Journal of Functional Foods* (2010).

6 Fujii H, Nishioka H, et al. Acute, subchronic and genotoxicity studies conducted with Oligonol, an oligomerized polyphenol formulated from lychee and green tea extracts. *Food Chem Toxicol* 2008;46:3553-62.

7 Spierings, E. et al. A Phase I Multiple Dose Trial of the Safety of Oligonol, a Novel Polyphenol Oligomer, in Healthy Volunteers. Unpublished Report.