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**Antioxidants Play an Important Role in Maintaining Good Health
—Meta-analysis does not undermine current body of evidence—**

WASHINGTON, D.C., *April 16, 2008* — An extensive body of scientific research has shown that taking antioxidant supplements, including vitamins C and E, beta-carotene, zinc and selenium, consistently over the long-term, can play a role in reducing the risk of chronic disease, and an updated meta-analysis published in the *Cochrane Database of Systematic Reviews*¹ should not cause consumers to question the efficacy or safety of antioxidant supplements.

“Antioxidant supplements are certainly not meant to be magic bullets and should not realistically be expected to undo a lifetime of unhealthy habits,” said Andrew Shao, Ph.D., vice president, scientific and regulatory affairs, for the Council for Responsible Nutrition (CRN), the leading trade association for the dietary supplement industry. “However, when used properly, in combination with eating a healthy diet, getting plenty of exercise, not smoking, etc., antioxidant supplements can play an important role in maintaining and promoting overall health.”

The authors of this meta-analysis examined the effects of antioxidant supplements on all-cause mortality, concluding with negative generalizations that discount most of the body of scientific research behind antioxidants supplements.

“The conclusions one can reach from this meta-analysis are very limited. In fact, a variation of these results has already been published and was heavily criticized in its original version, due, in part, to the

authors' systematic exclusion of studies that didn't support the hypothesis they were trying to prove," said John Hathcock, Ph.D., senior vice president, scientific and international affairs, CRN. "With nearly 750 studies to choose from, it's interesting that they chose to include only 67 studies—less than nine percent of the total clinical trials on antioxidants that are available. Moreover, the possible 750 clinical trials do not even account for other sources of evidence, such as observational studies, which were not considered by the authors at all. It is their exclusions, not the inclusions, where the fault lies."

Although the authors claimed to be assessing antioxidant supplements for the prevention of mortality, they excluded all studies—405 of them—that reported no deaths.

CRN further pointed to four specific problems with the meta-analysis, encouraging those who review the results to question the validity of the authors' conclusions:

- **When appropriately conducted, meta-analyses can be a very insightful and useful tool.**

However, meta-analyses are also subject to abuse by those that have a pre-determined conclusion and are looking for a method to support it, which seems to have happened here. The studies that were chosen were very dissimilar from each other—examining different antioxidants (in some cases not even antioxidants), different doses, different populations with varying health statuses, for different durations, rendering them incompatible for combination into one analysis with general conclusions.

- **There's really no such thing as "all-cause" mortality when assigning "blame."** Only all-cause mortality was assessed in the review, meaning that the researchers did not determine the cause of death, or even offer any plausible possibilities. Instead, they intimated that all deaths were somehow connected to taking antioxidant supplements.

- **“A” doesn’t always stand for antioxidant.** Despite the almost universal agreement by the scientific community that vitamin A does not act as an antioxidant, vitamin A studies were included in this analysis, potentially skewing the overall results, given the limited number of studies that were included in this analysis to begin with.
- **If you have a political agenda or bias, state it up front.** The conclusion by the authors that antioxidant supplements act as medicinal products and should undergo pre-market approval is not explored anywhere in the article, and therefore, has no place in the conclusions of this analysis. The authors may be credible scientists, but their expertise in determining public policy in the regulatory arena is questionable. One has to wonder if their true agenda is to change the way supplements are regulated, thereby begging the question of whether the researchers had a pre-determined theory that they looked to scientific studies to support it. Regardless of their opinion of supplement regulation, the data in this analysis does not address the issue of policy.

“It really comes down to whether or not this meta-analysis should mean anything to consumers or scientists,” says Dr. Shao. “And from a practical standpoint, it doesn’t mean much. We maintain that healthy consumers who are using antioxidant supplements in the manner that they were meant to be used—as complements to, not in place of—other healthy lifestyle habits, can continue to feel confident in the benefits these supplements provide. For those consumers who are seriously ill with cancer, heart disease, etc., they should talk with their doctor about everything they put into their bodies. I know that I will continue to take my antioxidant supplements and will continue to encourage my family, friends and colleagues to do so as well. This study won’t change that.”

¹ Bjelakovic G, Nikolova D, Gluud LL, et al. Antioxidant supplements for prevention of mortality in healthy participants and patients with various diseases. *Cochrane Database of Systematic Reviews* 2008, Issue 2. Art. No.: CD007176. DOI: 10.1002/14651858.CD007176.

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Note to Editor: The Council for Responsible Nutrition (CRN), founded in 1973, is a Washington, D.C.-based trade association representing dietary supplement industry ingredient suppliers and manufacturers. CRN members voluntarily adhere to a strong code of ethics and manufacture dietary supplements to high quality standards under good manufacturing practices.