

# Food & Nutrition

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## *Nathan S Bryan*

Baylor College of Medicine, USA

### **Dietary nitrite and nitrate: From menace to marvel**

There are now indisputable health benefits of nitrite when administered in a clinical setting for specific diseases. Most of the published reports identify the production of nitric oxide (NO) as the mechanism of action for nitrite. Basic science as well as clinical studies demonstrates nitrite and/or nitrate can restore NO homeostasis as an endothelium independent source of NO that may be a redundant system for endogenous NO production. Nitrate must first be reduced to nitrite by oral commensal bacteria and then nitrite further reduced to NO along the physiological oxygen gradient. Despite decades of rigorous research on its safety and efficacy as a curing agent, sodium nitrite and nitrate are still regarded by many as a toxic undesirable food additive. However, research within the biomedical science community has revealed enormous therapeutic benefits of nitrite and nitrate that are currently being developed as novel therapies for conditions associated with nitric oxide insufficiency. This presentation will highlight the fundamental biochemistry of nitrite and nitrate in human physiology and provide evidence that nitrite and nitrate be considered essential nutrients. Foods or diets enriched with nitrite can have profound positive health benefits.

### **Biography**

Nathan S Bryan is an international expert on nitrate, nitrite and nitric oxide. He has made many seminal discoveries in the field of nitric oxide. These discoveries and findings have unveiled many beneficial effects of nitrite in the treatment and prevention of human disease and may provide the basis for new preventive or therapeutic strategies in diseases associated with NO insufficiency and new guidelines for optimal health. He has published a number of highly cited papers and authored or edited 5 books. He is also an inventor on multiple issued patents.

[Nathan.bryan@bcm.edu](mailto:Nathan.bryan@bcm.edu)

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