

Novel approaches for diagnosing and restoring nitric oxide production in humans

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Almost 30 years after the discovery of nitric oxide and 12 years after the Nobel Prize was awarded for its discovery, there have been no breakthrough nitric oxide based therapies. Furthermore there is no standard laboratory test or method for determining nitric oxide status in patients. We have developed a non-invasive semi-quantitative assay for measuring total nitric oxide availability through a salivary colorimetric test strip. We have also identified a novel combination of beet root and hawthorn berry which has robust nitric oxide activity. Results from a double blinded, placebo controlled study enrolling patients over 40 years old with 3 or more of the following cardiovascular risk factors: hypertension, obesity, hyper lipidemia, smoking, sedentary, family history of cardiovascular disease and diabetes shows remarkable effects at restoring NO homeostasis and modifying risk factors. Patients taking NO product twice a day for 30 days led to a significant increase in both plasma nitrite ($p < 0.01$) and nitrate ($p < 0.0001$) indicating an increase in systemic NO availability. There was a statistically significant reduction in 72% of patients with elevated triglycerides ($>150\text{mg/dL}$) after 30 days compared to their starting levels ($168 \pm 17 \text{ mg/dL}$ vs $232 \pm 19 \text{ mg/dL}$; $p = 0.02$). The strategy of formulating a combination of natural products and botanicals chosen specifically for their nitric oxide activity shows promise in restoring NO homeostasis in human subjects at risk for cardiovascular disease. A non-invasive assay for determining NO status in humans may provide an additional tool for diagnosis and management of cardiovascular disease.

Biography

Dr. Nathan S. Bryan is an Assistant Professor of Molecular Medicine within the Brown Foundation Institute of Molecular Medicine, part of the School of Medicine at the University of Texas Health Science Center at Houston. Dr. Bryan earned his undergraduate Bachelor of Science degree in Biochemistry from the University of Texas at Austin and his doctoral degree from Louisiana State University School of Medicine in Shreveport. He pursued his post-doctoral training as a Kirschstein Fellow at Boston University School of Medicine. Dr. Bryan has published a number of highly cited papers and authored or edited 4 books.