



Diego A Bonilla Ocampo

DBSS Research Division, Colombia

Dietary nitrate for health and exercise

Significant amounts of dietary nitrate can be found in some vegetables like beetroot, rocket, spinach, cress, lettuce, celery, radish, among others. The nitrate concentration is generally higher than 250mg per 100g in the mentioned foods. Recently, the body of scientific literature regarding the positive effects of dietary nitrate on health (reduction in blood pressure) and exercise performance (higher force production, recovery improvement, etc.) has increased. After ingestion, dietary nitrate is reduced by oral microbiota to nitrite through their enzymatic machinery. This process continues in stomach by means of the non-enzymatic reduction of nitrate and nitrite ions to nitric oxide, which leads to an increase in vasodilation. The nitrate/nitrite reduction process is stimulated by local hypoxia and high hydrogen ion concentration, which allows the nitric oxide production to be spatially allocated according to the physiological needs (e.g., muscle contraction). Notwithstanding, there are some doubts if the positive effects of dietary nitrate are actually due to the concentration of this ion per se or whether other secondary metabolites of these vegetables mediate the response.

Considering the association of excessive fat accumulation and high blood pressure with endothelial dysfunction,

which could result in future cardiovascular risk, it is essential to strengthen nutritional education in regards to nitrate intake. As we concluded in one of our recent publications, dietary nitrate might be an easy, accessible, safe, and evidence-based strategy to reduce blood pressure. This cost-effective nutritional strategy would benefit not only pre-hypertensive patients but also recreational, exercisers and elite athletes. More research is needed to standardize the nitrate concentration in different foods.

Speaker Biography

Diego A Bonilla Ocampo is the CEO and scientific director of DBSS, an international organization that promotes research and public awareness in exercise and sport sciences. He is a research member at the Biochemistry & Molecular Biology Lab at Universidad Distrital Francisco José de Caldas, Bogotá - Colombia, besides being part of the Research Group in Physical Activity, Sports and Health (GICAFS) at Universidad de Córdoba, Montería - Colombia. He has published more than 20 scientific articles in English and Spanish. Currently, he acts as science product manager for MTX Corporation (Europe) and international sports sciences speaker with frequent participations in Colombia, Mexico, Costa Rica, Spain, Peru and USA.

e: dabonilla@g-se.com

 Notes: