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LAY ABSTRACT

While it is known that the consumption of a diet rich in plant foods is associated with a reduced risk for cardiovascular disease, the mechanisms underlying their protective effects are not well understood. Recently, a series of studies have provided support for the concept that flavanols, a specific class of compounds found in high concentrations in certain plant foods such as tea, cocoa, red grapes and red wine, and cranberries, may play a significant role in these protective cardiovascular effects. It is thought that these phytochemicals work in part by inducing the production of the gas, nitric oxide, in the vascular tissue, which can improve blood flow and reduce blood pressure. Cardiovascular disease impacts African-Americans more than Caucasians, but unfortunately, the majority of studies showing beneficial effects of flavanols have been conducted in Caucasians. This research proposal is designed to determine if high intake of flavanols provide similar positive vascular effects in African-Americans. As a group, African-Americans are characterized by lower body pools of nitric oxide than Caucasians, so we predict that the recently described vascular protective effects of the flavanols will be amplified in African-Americans. The results from this work could lead to improvements in current nutrition education programs and public health policies that are aimed at reducing the risk of vascular disease, both in California and nationwide. While this work will be of benefit to the population in general, we predict it will be of particular value for African-Americans given that, as a group, they are characterized by a particularly high incidence of vascular disease.