

**Question :** JB asks, What are the benefits of complimenting wine with a high antioxidant pure chocolate?

**Answer :** This is a very complex question. Let's start with some definitions. Cocoa is the non-fat component of cocoa liquor (finely ground cocoa beans). Chocolate is a combination of cocoa, cocoa butter, sugar, etc., into a solid food product. Cocoa beans, along with red wine, represent two of the most concentrated food sources of the cocoa polyphenols, flavanols and procyanidins. Resveratrol, a stilbene and potent anti-oxidant found in red wine is also found in cocoa powder at about 50% the amount by weight. There is a large body of evidence that supports a favorable effect of red wine or even alcohol in moderation on all cause mortality and cardiovascular disease. Chocolate and cocoa may also promote cardiovascular health by decreasing or inhibiting LDL-oxidation and platelet activation or function, enhancing serum lipid profiles, favorably modifying eicosanoid synthesis, lowering blood pressure, promoting endothelial-dependent relaxation or dilation, and inhibiting free-radical induced erythrocyte hemolysis. Additionally, they may act by modulating immune responses. Most of these hypotheses are based on epidemiologic and in vitro data. Future study design recommendations include: (1) specifying the full characterization of the chocolate or cocoa used and the calculated dose; (2) identification of the specific flavanol components found in both cocoa and wine and; (3) using biologic markers to assess responses to these products. The concentration of cocoa polyphenols is higher in dark chocolate than milk chocolate. White chocolate contains no polyphenols. Milk proteins found in milk chocolate may inhibit absorption of flavenoids. Resveratrol levels are highest in cocoa powder followed by unsweetened baking chocolates, semisweet chocolate baking chips, dark chocolates, milk chocolates, and chocolate syrups. Synergy of consumption of red wine with a chocolate has not been studied. Nonetheless, come Halloween night, we shall be pairing 5 ounces of a 12% red wine with a Xocai Chocolate, high in cocoa polyphenols and resveratrol! Cooper KA et al. Cocoa and health: a decade of research. *B J Nut.* 2008, 99: 1-11. Hurst WJ et al. Survey of the trans-Resveratrol and trans-Piceid Content of Cocoa-containing and Chocolate Products. *J Agric Food Chem.* 2008, 56: 8374-8. Lippi G et al. Dark chocolate: consumption for pleasure or for therapy? *J Thromb Thrombolysis*, 2008. Crews Jr, WD et al. A double-blind, placebo-controlled, randomized trial of the effects of dark chocolate and coca on variables associated with neuropsychological functioning and cardiovascular health clinical findings from a sample of healthy, cognitively intact older adults. *Am J Clin Nutr* 2008. 87:872-80. Corder R. Red wine, chocolate and vascular health: developing the evidence base. *Heart.* July 2008. 94:7;821-3. Allen RR et al. Daily Consumption of a Dark Chocolate Containing Flavanols and Added Sterol Esters Affects Cardiovascular Risk Factors in a Normotensive Population with Elevated Cholesterol. *J Nutr.* 2008. 138:725-31.