Cocoa Flavonols Improve Vision and Cognitive Function

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Cocoa beans grow on the Theobroma cacao tree, which is found in Southeast Asia, Hawaii, Brazil and other South American countries. Cocoa beans are harvested, dried and roasted and then crushed into chocolate liquor. This liquor is then pressed to remove most of the cocoa butter and the remainder is further processed to become unsweetened cocoa powder. Cocoa contains fat, carbohydrates, antioxidants, vitamins, minerals and other compounds.

Cocoa phenols have been found to prevent LDL (bad) cholesterol from plague buildup in the arteries, thereby, reducing the risk of cardiovascular disease. Theobromine is the primary alkaloid found in cocoa and chocolate. Cocoa powder can vary in the amount of theobromine, from 2% theobromine to at least 10%. Flavonols are a subclass of flavonoids. Flavonoids are dietary compounds found in tea, wine, cocoa, fruit and vegetables. They contribute significantly to color, taste and possibly offer health benefits.

Cognitive function is the term used to describe a person's state of consciousness (alertness and orientation), memory, and attention span. A mental status examination (MSE) is a standard test used by healthcare professionals to measure a patient's overall mental health. Evaluating a patient's cognitive function includes, first of all, measuring their level of alertness and orientation.

The visual system provides a supremely efficient means for the rapid assimilation of information from the environment to aid in the guidance of behavior. Vision can be damaged by trauma, exposure, or infection. Diseases intrinsic to the eye including glaucoma, cataracts, or retinal detachment, may also affect vision. The importance of eye examinations cannot be over emphasized, as an eye examination often reveals signs of systemic disease and intrinsic ocular disorders, as well as the effects of drugs that are either administered systemically or instilled into the eye itself.

Current research suggests that consumption of cocoa flavonols may improve visual as well as cognitive function in young adults. The study included 30 young adults between the ages of 18 and 25 years who consumed a specified amount of both white and dark chocolate with a one week interval between testing sessions. The results revealed that those who consumed dark chocolate, which contained 720 mg of cocoa flavonols showed marked improvement in visual contrast sensitivity and reduced the time required to detect motion direction.

It was also found that cocoa flavonols enhanced cognitive function by improving spatial memory and performance on some aspects of the choice reaction time task. When the participants consumed white chocolate, no significant benefits to visual or cognitive function were observed. These findings suggest that cocoa flavonols found in dark chocolate appear to increase both visual and cognitive function in young adults. Since this study only focused on younger adults, a new study is underway to determine if these findings can be replicated in older adults.1

1 Field DT, Williams CM, Butler LT. Consumption of cocoa flavanols results in an acute improvement in visual and cognitive functions. Physiol Behav. Jun2011;103(3):255-60.