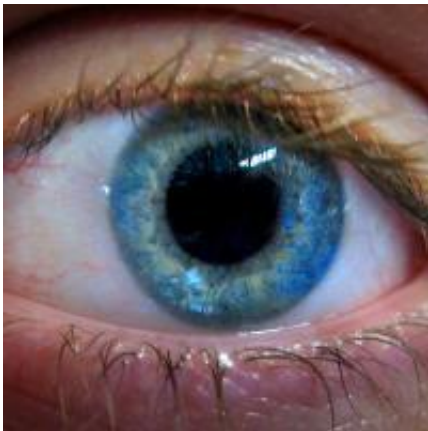


A cup of coffee a day may keep retinal damage away

April 30 2014, by Krishna Ramanujan



(Medical Xpress)—Coffee drinkers, rejoice! Aside from java's energy jolt, food scientists say you may reap another health benefit from a daily cup of joe: prevention of deteriorating eyesight and possible blindness from retinal degeneration due to glaucoma, aging and diabetes.

Raw coffee is, on average, just 1 percent caffeine, but it contains 7 to 9 percent chlorogenic acid (CLA), a strong antioxidant that prevents [retinal degeneration](#) in mice, according to a Cornell study published in the *Journal of Agricultural and Food Chemistry* (December 2013).

The retina is a thin tissue layer on the inside, back wall of the eye with millions of light-sensitive cells and other nerve cells that receive and

organize visual information. It is also one of the most metabolically active tissues, demanding high levels of oxygen and making it prone to [oxidative stress](#). The lack of oxygen and production of [free radicals](#) leads to tissue damage and loss of sight.

In the study, mice eyes were treated with nitric oxide, which creates oxidative stress and free radicals, leading to retinal degeneration, but mice pretreated with CLA developed no [retinal damage](#).

The study is "important in understanding functional foods, that is, natural foods that provide beneficial health effects," said Chang Y. Lee, professor of food science and the study's senior author. Holim Jang, a graduate student in Lee's lab, is the paper's lead author. Lee's lab has been working with Sang Hoon Jung, a researcher at the Functional Food Center of the Korea Institute of Science and Technology in South Korea. "Coffee is the most popular drink in the world, and we are understanding what benefit we can get from that," Lee said.

Previous studies have shown that coffee also cuts the risk of such chronic diseases as Parkinson's, prostate cancer, diabetes, Alzheimer's and age-related cognitive declines.

Since scientists know that CLA and its metabolites are absorbed in the human digestive system, the next step for this research is to determine whether drinking coffee facilitates CLA to cross a membrane known as the blood-retinal barrier. If drinking coffee proves to deliver CLA directly into the retina, doctors may one day recommend an appropriate brew to prevent retinal damage. Also, if future studies further prove CLA's efficacy, then synthetic compounds could also be developed and delivered with eye drops.

Provided by Cornell University

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