JOURNAL OF CLINICAL RESEARCH BEST PRACTICES

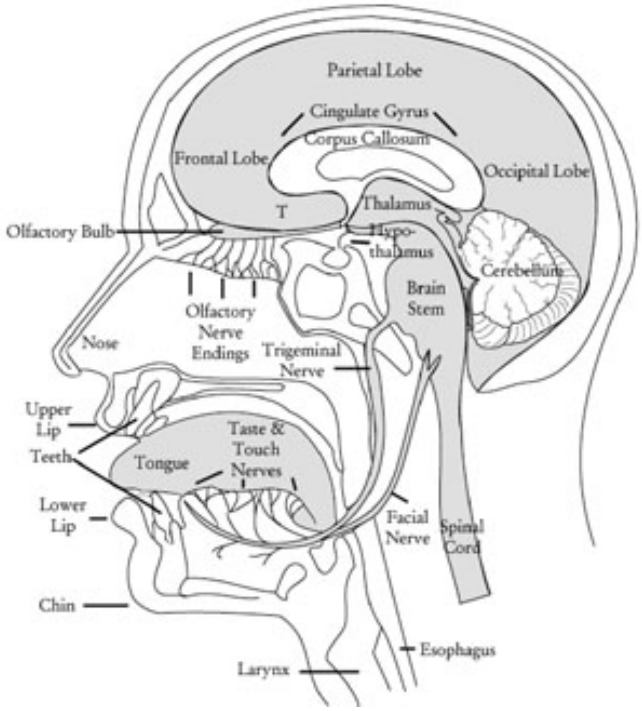
Vol. 12, No. 4, April 2016 "Happy Trials to You"

Scientists Demonstrate that Visual Exposure to Color Modifies Neurological Effects of Coffee

By Norman M. Goldfarb

Researchers at the Stamford University School of Medicine reported today that there is a synergistic effect on mood between the consumption of coffee and visual exposure to color. Doctor Robert McCoy, Professor of Neuropsychiatry, stated, "Ganglions in the visual cortex, where images are processed, and in the anterior insula, where flavor is perceived, are both stimulated by certain aldehydes and possibly also therizoles found in both *Coffea arabica* and *Coffea canephora*. These plant species account for 97% of coffee consumed by the public."

In MRI studies, the researchers observed activation of unusual bidirectional ganglia between the anterior insula and the extrastriate area of the visual cortex, which appear to transmit and amplify electrical signaling between the two cognitive centers. Extrastriations play an important role in the perceptual/conceptual neuropsychological model of the visual cortex first proposed by Anastasios Raftopolous.



"Interestingly," said Dr. Benjamin Goldacre, Director of the Institute of Bioneurological Phrenology, "we observed the effect within 10 seconds of coffee consumption, which suggests absorption of the chemicals might be retronasal, that is, through the back of the throat, which means trigeminal messaging might be involved. Keep in mind that visual information consolidates in the optic chiasma and then passes through the lateral geniculate nucleus before reaching the visual cortex, an entirely separate path than that involved in flavor perception."

"This finding appears to explain previous research that identified the synergistic effects, but did not explain them. Further research is needed to determine whether the wavelength of violet (400 mm), for example, is associated with the excitation of ganglia in the lateral geniculate nucleus, while the wavelength of red-orange (620 mm) is associated with the excitation of other ganglia," added Dr. McCoy.

The researchers have not investigated the effect of colors like pink or blue — popular in nursery décor — which may have similar effects, or none at all. "We do know that traces of aldehydes and therizoles can be found in mother's milk, which, some have suggested, might explain certain aspects of temperament associated with gender, but that's just speculation, for now," said Dr. Goldacre.

"It is intriguing that Starbuck's appears to be quietly testing new color schemes for their stores," said Dr. McCoy.

"Coffee can either excite or calm, which is interesting since its color, brown, is a mixture of other colors," said Dr. McCoy.

"Because caffeine is not the chemical that activates the responsible neurochromatic pathways, the effect is only slightly diminished by common decaffeination processes. Aldehydes and therizoles are flavor components not known to bind to adenosine receptors in the cingulate gyrus, so their role in this process was unexpected," said Dr. Goldacre.

"We can only guess at the evolutionary significance of this neuromechanism, but it may be a relatively recent adaption to the precedents of Ayurvedic and similar practices in early humans," said Dr. McCoy.

Doctors Goldacre and McCoy examining an MRI scan of the dorsal visual cortex and anterior insula.

Doctors McCoy and Goldacre are planning a clinical trial later this year. They invite members of the public to participate in an anonymous exploratory study.

Test the coffee/color effect for yourself by slowly taking 10 sips of coffee while staring intently at one of the color samples (see page 3 below). Anecdotal evidence suggests the color violet produces a feeling of calm, while the color red-orange increases energy. "These apparently opposite effects of coffee consumption might be explained by something as simple as the color of the walls in your home," said Dr. McCoy, "but we'll leave that question to the school of architecture." "Something as simple has colored foam on a latte could amplify the effect," added Dr. Goldacre.

Doctors McCoy and Goldacre previously reached the notice of the public with their exposés, "Quack! Tales of Medical Fraud" and "Bad Science: Quacks, Hacks and Big Pharma Flacks," respectively, but their primary focus is on serious neurological research, which, until now, has drawn little attention from the popular press.

Author

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Color Samples

Slowly take 10 sips of freshly made coffee while staring intently at one of the color samples below. (Hide the other one.) Please report your results in the anonymous survey form at http://www.firstclinical.com/survey217.