

# RGB color model

The RGB color model is an additive color model in which red, green, and blue light are added together in various ways to reproduce a broad array of colors. The name of the model comes from the initials of the three additive primary colors, red, green, and blue.

The main purpose of the RGB color model is for the sensing, representation, and display of images in electronic systems, such as televisions and computers, though it has also been used in conventional photography. Before the electronic age, the RGB color model already had a solid theory behind it, based in human perception of colors.

In a retrospective analysis, red (R), green (G), blue (B), and [RGB color model](#) signal intensities of aneurysm were quantitatively measured using an intraoperative digital picture in 150 cases. Color intensities were measured by two independent investigators. Aneurysm redness was defined as an R/RGB ratio since the brightness of the operative field differed by each surgery or angle of the microscope.

The median aneurysm size was 4.9 mm (IQR 3.9-5.9 mm). Median color intensity of R, G, B, RGB, and R/RGB ratio were 206 (185-215), 129 (107-150), 136 (115-157), 157 (140-174), and 1.26 (1.20-1.38), respectively. The intraclass correlation coefficient for R/RGB ratio was 0.73 ( $P < 0.0001$ ). The proportion of female sex was significantly higher for EUCA ( $p = 0.019$ ). Median R/RGB ratio in GUCA was significantly larger than that of non-EUCA (OR 1.25, 95% CI 1.19-1.35) ( $p = 0.035$ ). Even after adjustment of female sex, a R/RGB ratio  $\geq 1.36$  was related to EUCA (OR 3.02, 95% CI 1.30-7.02).

The present study showed that an R/RGB ratio could be calculated easily and a larger R/RGB ratio was related to EUCA. When EUCA is managed by surgical treatment, more careful manipulation should be needed compared to non-EUCA due to a "red" wall of EUCA <sup>1)</sup>.

<sup>1)</sup>

Matsukawa H, Nagao Y, Shirakawa M, Uchida K, Yoshimura S. Wall Redness of Enlarged Unruptured Cerebral Aneurysm. J Stroke Cerebrovasc Dis. 2021 Apr 5;30(6):105763. doi: 10.1016/j.jstrokecerebrovasdis.2021.105763. Epub ahead of print. PMID: 33831769.

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