

Cerebral blood volume

150 ml.

Quantitative measurement of [cerebral blood volume](#) (CBV, defined as ml blood in 100 ml brain) is useful for advancing our understanding of [brain physiology](#) and [pathophysiology](#) ^{1) 2)}.

[Perfusion computed tomography](#) (CT) is a technique that allows rapid qualitative and quantitative evaluation of [cerebral perfusion](#) by generating maps of [cerebral blood flow](#) (CBF), [cerebral blood volume](#) (CBV), and [mean transit time](#) (MTT).

see [Relative cerebral blood volume](#).

Studies found significantly higher median CBV ($p = 0.00003$, ANOVA) and lower median ADC in contrast-enhancing areas of glioblastomas, compared to astrocytomas and oligodendrogliomas ($p = 0.41333$, ANOVA). Interestingly, molecularly defined glioblastoma, which usually does not contain contrast-enhancing areas, also shows significantly higher CBV values in the non-enhancing tumor than common glioblastoma and astrocytoma grade 4 ($p = 0.01309$, ANOVA).

Advanced imaging shows promise in visualizing tumor biology and improving the diagnosis of brain tumor patients ³⁾

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Derdeyn CP, Videen TO, Yundt KD, Fritsch SM, Carpenter DA, Grubb RL, Powers WJ. Variability of cerebral blood volume and oxygen extraction: stages of cerebral hemodynamic impairment revisited. *Brain*. 2002;125(Pt 3):595-607.

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Kavec M, Usenius JP, Tuunanen PI, Rissanen A, Kauppinen RA. Assessment of cerebral hemodynamics and oxygen extraction using dynamic susceptibility contrast and spin echo blood oxygenation level-dependent magnetic resonance imaging: applications to carotid stenosis patients. *Neuroimage*. 2004;22:258-267

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Griessmair M, Delbridge C, Ziegenfeuter J, Bernhardt D, Gempt J, Schmidt-Graf F, Kertels O, Thomas M, Meyer HS, Zimmer C, Meyer B, Combs SE, Yakushev I, Wiestler B, Metz MC. Imaging the WHO 2021 Brain Tumor Classification: Fully Automated Analysis of Imaging Features of Newly Diagnosed Gliomas. *Cancers (Basel)*. 2023 Apr 18;15(8):2355. doi: 10.3390/cancers15082355. PMID: 37190283.

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