

Effect of General Anesthesia on Cerebral Blood Flow

The administration of [anesthetic agents](#) fundamentally shifts the responsibility for the maintenance of homeostasis from the patient and their intrinsic physiological regulatory mechanisms to the anesthesiologist. Continuous delivery of oxygen and nutrients to the brain is necessary to prevent irreversible injury and arises from a complex series of regulatory mechanisms that ensure uninterrupted cerebral blood flow. Our understanding of these regulatory mechanisms and the effects of anesthetics on them has been driven by the tireless work of pioneers in the field. It is of paramount importance that the anesthesiologist shares this understanding ¹⁾.

All [Inhalational anesthetics](#) (except for [nitrous oxide](#)) produce a dose-dependent decrease in [cerebral metabolism](#). The changes in cerebral blood flow depend on the changes in [cerebral metabolism](#) and on direct [vasodilatory](#) effects; frequently volatile anesthetics increase [cerebral blood flow](#) ²⁾.

Huhndorf M, Eimer C, Becher T, Ahmeti H, Jansen O, Synowitz M, Helle M, Ulmer S, Lindner T. Effect of General Anesthesia on [Cerebral Blood Flow](#) Measured by [Arterial Spin Labeling](#): A Retrospective Study. J Magn Reson Imaging. 2022 Nov 16. doi: 10.1002/jmri.28507. Epub ahead of print. PMID: 36382662.

¹⁾

Slupe AM, Kirsch JR. Effects of anesthesia on cerebral blood flow, metabolism, and neuroprotection. J Cereb Blood Flow Metab. 2018 Dec;38(12):2192-2208. doi: 10.1177/0271678x18789273. Epub 2018 Jul 16. PMID: 30009645; PMCID: PMC6282215.

²⁾

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