

African Americans at greater risk from stroke and other cerebrovascular diseases

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Researchers at The University of Texas have found that compared to Caucasian Americans, African Americans have impaired blood flow regulation in the brain that could contribute to a greater risk of cerebrovascular diseases such as stroke, transient ischaemic attack ("mini stroke"), subarachnoid haemorrhage or vascular dementia. These findings were published in *Experimental Physiology*.

Cerebrovascular diseases can result from reduced [blood flow](#) in affected areas of the brain. It is still unclear why African Americans are at higher risk but it could be related to impaired arterial functions (e.g. restricted abilities of arteries to dilate and/or enhanced arterial constriction). A similar dysfunction in brain circulation could explain the increased risk of cerebrovascular diseases.

Researchers measured the ability of cerebral [blood vessels](#) to dilate and elevate blood flow during increased [carbon dioxide](#) exposure. They found that the increase in blood flow in college-aged African Americans was reduced relative to age, sex, and body weight-matched Caucasian Americans.

The study only measured the responses in one blood vessel and carbon dioxide sensitivity may differ between cerebral vessels, however, these results are the first to identify such impairment and suggest that underlying mechanisms of blood vessel dysfunction occur in relatively young and healthy African Americans, a population with elevated risk, prior to the onset of disease.

Dr Mike White, Reader in Exercise Physiology at the University of Birmingham and author of the viewpoint article, Genes count: attenuated cerebral vasodilator capacity in young African Americans, published on Friday, 7 November 2014, commented:

"The study by Professor Brothers and his

colleagues found that in healthy African American students, a major brain blood vessel did not widen as much as it did in healthy Caucasian American students, when both groups were exposed to a small rise in blood carbon dioxide levels. This could indicate a fundamental difference between the groups or an early change in function, which later in life may link to cerebrovascular diseases like stroke. African Americans have a much higher risk of this type of disease, so understanding how this comes about and also perhaps developing a method of screening for increased risk early in life is brought a little nearer as a result of this work."

Given the higher prevalence of [cerebrovascular disease](#) including stroke among African Americans, this topic deserves more research to identify mechanisms of impairment and determine effective interventions to improve health outcomes in this population.

More information: Hurr C, Kim K, Harrison ML, Brothers RM (2014) Attenuated Cerebral Vasodilatory Capacity in Response to Hypercapnia in College-aged African Americans. *Exp Physiol* 'Accepted Article'; DOI: [10.1113/expphysiol.2014.082362](https://doi.org/10.1113/expphysiol.2014.082362),

White M (2014) Genes count: attenuated cerebral vasodilator capacity in young African Americans. *Exp Physiol*, onlinelibrary.wiley.com/doi/10.1113/expphysiol.2014.083725/abstract

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