

# Human brain has coping mechanism for dehydration

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Image courtesy of Blausen Medical

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(HealthDay)—Although dehydration significantly reduces blood flow to the brain, researchers in England have found that the brain compensates by increasing the amount of oxygen it extracts from the blood. The findings were published recently in the *Journal of Physiology*.

In conducting the study, the researchers inserted catheters in the [brachial artery](#) and internal jugular vein of 10 experienced male cyclists. Using the catheters and Doppler ultrasound technology, they measured the [blood flow](#) of the cyclists as they rode a bike to exhaustion in heat.

Dehydration was linked with reduced body mass, impaired exercise capacity, and an increase in internal body temperature. Dehydration also

led to reduced internal carotid and middle cerebral artery blood flow but did not compromise common carotid artery blood flow. The reduced cerebral perfusion was accompanied by increased O<sub>2</sub> extraction, resulting in a maintained cerebral metabolic rate for oxygen.

"This research has helped us understand a lot more about how the human [brain](#) responds to extreme exercise in extreme conditions," study first author Steven Trangmar, a researcher at Brunel University, said in a university news release. "We can now see that blood flow to this vital organ is significantly affected by [dehydration](#). But we can also see that this is when the brain kicks in, preserving its own oxygen consumption to ensure it sustains its function."

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