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# Radiation-induced damage to brain tissue reversed by oxygen starvation in mice

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Treating brain tumors with whole brain radiation therapy can damage healthy brain tissue, but a new study in mice reveals that limiting the oxygen supply, or hypoxia, can alleviate some of the cognitive impairment caused by the radiation. The results are reported in the Jan. 18 issue of the online journal *PLoS ONE*.

The researchers, led by William Sonntag of University of Oklahoma, exposed the mice to a clinically relevant regimen of radiation, which caused progressive deterioration of spatial learning starting about two months post-radiation.

However, when mice were treated with chronic hypoxia for about three weeks, beginning one month after radiation exposure, they showed significant improvement in this area, which was maintained for at least two months after returning to normal oxygen levels.

The radiation treatment also caused an early decline in contextual learning and memory, but these deficiencies were transient and dissipated within three months post-radiation.

**More information:** Warrington JP, Csiszar A, Mitschelen M, Lee YW, Sonntag WE (2012) Whole Brain Radiation-Induced Impairments in Learning and Memory Are Time-Sensitive and Reversible by Systemic Hypoxia. PLoS ONE 7(1): e30444. doi:10.1371/journal.pone.0030444