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Lithium Treatment for ALS

Few diseases are as devastating as the progressive neurodegenerative disease ALS (amyotrophic lateral sclerosis), also known as Lou Gehrig's disease. Over time, a patient with ALS will lose almost all ability to move. The paralysis is caused by the gradual death of the neurons that control movement. Just one FDA-approved drug, riluzole, has been shown to slow the disease's progression—and only minimally.

Now a small study suggests how treatment might be improved. In a February report in *Proceedings of the National Academy of Sciences*, Francesco Fornai, an anatomy professor and physician at the University of Pisa, found that lithium—well known as a treatment for bipolar disorder—might also work against ALS.

In the study, 16 ALS patients received a drug combo that consisted of riluzole and lithium. Twenty-eight other patients were treated with riluzole alone. After 15 months, eight of the patients who had taken only riluzole had died, and the disease had progressed markedly in the other controls. The patients who took both riluzole and lithium fared much better. None died, and their condition worsened only a little bit.

Why would lithium help? In a related study using mice, Fornai found that lithium counteracted the damage to motor neurons brought on by the disease. The drug also stimulated the production of mitochondria, the energy-generating structures within cells. Although the findings are promising, Fornai cautions that "it will take some time to establish whether the use of lithium should be considered as a novel therapy for ALS."

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