

# Lithium in drinking water reduces suicide rates – possibly also as a result of medicine residue

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A study carried out back in June 2011 at the MedUni Vienna has shown that lithium contained in drinking water could reduce suicide rates. Previously, researchers had assumed that the majority of this lithium came from natural sources, leached out of rocks and stones. According to Nestor Kapusta from the University Department of Psychoanalysis and Psychotherapy at the MedUni Vienna, new data has indicated that residue from prescribed lithium medication is finding its way into aquifers.

Says Kapusta: "The light metal [lithium](#) has been used in psychiatry for 60 years as a mood stabiliser and to prevent depression. It is also excreted out of the body and enters the groundwater or is not filtered out by the sewage treatment plants." The psychiatrist predicts that regions with high lithium prescribing rates may have a type of "cohort protection" in place: "A high density of psychiatrists and high levels of prescribing could mean more lithium in the drinking water, which could also have a positive impact on untreated individuals." Jakob Klein from the Suicide Research Group at the MedUni Vienna is currently working on this study.

## **High lithium levels in drinking water means lower suicide rate**

Even in the study carried out two years ago based on 6,460 samples of drinking water in 99 Austrian districts, it was discovered that high lithium levels in drinking water tended to produce a lower suicide rate in that area. This indicates that lithium can have measurable effects even as a trace element. Says Kapusta: "Some researchers now even maintain that lithium could be essential for humans."

A current study in the USA has demonstrated contamination of the groundwater and drinking water from the tap with numerous types of medication residue, illustrating how seriously the build-up of drugs in drinking water needs to be taken. Says Kapusta: "In the case of lithium, this would produce a potentially positive effect. However it would be far too premature to suggest that lithium should be added to drinking water. Further research is definitely needed on this." Although low levels of lithium in [drinking water](#) are not expected to cause any side effects compared to therapeutic doses (including kidney and thyroid problems), there are no studies to confirm this.

Says Kapusta: "Lithium is first and foremost not a panacea, even though some reports portray it as such." It has been discovered, for example, that lithium has a positive effect on the growth of new brain cells not just in adults, but also in embryos. It is however not yet clear what effect long-term exposure to the trace element can have on pregnant women and children. This would require urgent fundamental research, discouraging any thoughts of supplementation for the time being, says the MedUni Vienna expert.

Lithium could also be of significance in the treatment of Alzheimer's disease or dementia: the element appears to deposit itself in the brain, more in the [white matter](#) than in the grey matter. Conversely, it is known that people receiving [lithium treatment](#) produce more [grey matter](#). "Alzheimer's disease can be associated with the destruction of and changes to white matter that lithium could help to counteract," says the MedUni Vienna researcher.

Provided by Medical University of Vienna

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