

# Antibiotic use can increase nerve damage risk

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Research from the University of Dundee has shown that a commonly used class of antibiotics may increase a patient's risk of suffering a serious and potentially permanent form of nerve damage by almost 50 percent.

Peripheral [neuropathy](#) has long been recognised as a potential side effect of [fluoroquinolone antibiotics](#) but it was not known how strong this association was and how it could be affected by the length of [treatment](#), or by age and gender.

Researchers led by Dr. Daniel Morales, of the University's School of Medicine, looked at a database of 1.3 million adults issued one or more prescriptions of fluoroquinolone or amoxicillin-clavulanate antibiotics with no diagnosis of [peripheral neuropathy](#) at the outset of treatment.

They found that current use of systemic fluoroquinolone antibiotics appeared to increase the risk of peripheral neuropathy by 47 percent, causing an additional 2.4 cases per 10,000 patients per year of treatment. A person prescribed with amoxicillin-clavulanate were not significantly more likely to experience peripheral neuropathy.

The risk was higher for men and rose with age and with the length of fluoroquinolone treatment. A peripheral neuropathy diagnosis remained more likely to be diagnosed for up to six months after the fluoroquinolone prescription.

Older men, the group most likely to experience the condition after taking a 28-day course of fluoroquinolones, were said to have a one in 34,000 chance of doing so. While the absolute risk of a peripheral

neuropathy diagnosis remained low, Dr. Morales said the findings should still be considered as one of the different potential side effects before prescribing antibiotics.

"The safety of fluoroquinolone antibiotics has received a lot of attention regarding their potential to cause long-term side effects in some people," he said. "One of these is peripheral neuropathy where nerves, most commonly affecting the lower limbs, can be affected, leading to numbness, pain, or problems with balance.

"Fluoroquinolones are effective antibiotics but [health care professionals](#) should recognise that peripheral neuropathy may rarely occur following fluoroquinolone therapy. Antibiotic stewardship is critically important to ensure these valuable medicines are used appropriately.

"We observed that treatment with fluoroquinolones could increase the risk of peripheral neuropathy by around 50 percent and that this risk may last for up to six months following treatment. It was interesting to observe that the results varied according to the length of antibiotic treatment and our findings suggest that risk may not be the same for everyone."

When health professionals suspect that a medicine causes an adverse reaction they are encouraged to report these cases to medicine regulatory agencies. Case reports previously identified peripheral neuropathy as a potential side effect of treatment with fluoroquinolone antibiotics. However, further studies confirming or refuting this risk were limited, in particular those aimed at quantifying risk and examining how it may vary among different people.

Dr. Morales' research has been published in the latest edition of the journal *JAMA Neurology*.

**More information:** Daniel Morales et al. Association Between Peripheral Neuropathy and Exposure to Oral Fluoroquinolone or Amoxicillin-Clavulanate Therapy, *JAMA Neurology* (2019). [DOI: 10.1001/jamaneurol.2019.0887](https://doi.org/10.1001/jamaneurol.2019.0887)

Provided by University of Dundee

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