

# Long-term antibiotic treatment for Q fever causes weight gain

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Scientists have unearthed still more evidence that antibiotics can contribute to obesity. Research published ahead of print in the journal *Antimicrobial Agents and Chemotherapy* suggests that patients on long-term antibiotic treatment gained weight and had significant changes in their gut microbiota.

The study, led by Didier Raoult, of Aix-Marseille University, Marseille, France, followed 48 patients who were being treated long-term with doxycycline and [hydroxychloroquine](#) for Q fever, and 34 control subjects. Nearly one quarter of the treated patients gained anywhere from two to 13 kg (five to 30 lbs), while none of the controls exhibited [weight gain](#). Patients typically received treatment for 18 months.

"Doxycycline and hydroxychloroquine treatment exhibited a reproducible effect on the community structure of the gastrointestinal microbiota, with treated patients presenting significantly lower concentrations of beneficial bacteria, Bacteroidetes, Firmicutes, and Lactobacilli," says coauthor Angelakis Emmanouil, of Unite de Recherche sur les Maladies Infectieuses et Tropicales Emergentes (URMITE), CNRS, Marseille.

"Reproducible" refers to the fact that the same effect is seen in all the treated patients with weight gain. That strengthens the connection between the diminished numbers of bacterial species and the weight gain.

The finding that one in four patients had weight gain suggests that particular subgroups of patients treated for Q fever are vulnerable to weight gain. In research published last year, Raoult and others showed that the vulnerable subgroups could be predicted by the composition of their [gut microbiota](#) prior to [antibiotic treatment](#).

The investigators conclude that their results highlight the need for reduced calorie diets for [patients](#) undergoing long-term antibiotic treatment, especially with doxycycline.

Q fever causes endocarditis, an infectious inflammation of the inner lining of the heart. Endocarditis can damage the heart valves, and has a high mortality rate.

Hydroxychloroquine is an antimalarial drug that is also used to treat rheumatoid arthritis and lupus erythematosus.

**More information:** A copy of the manuscript can be found online at [aac.asm.org/content/early/2014 ... 425-13.full.pdf+html](http://aac.asm.org/content/early/2014/.../425-13.full.pdf+html) . The final version of the article is scheduled for the June 2014 issue of the *Antimicrobial Agents and Chemotherapy*.

Provided by American Society for Microbiology

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