



Doxycycline

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Doxycycline is a tetracycline antibiotic that fights bacteria in the body.

Doxycycline is used to treat many different bacterial infections, such as acne, urinary tract infections, intestinal infections, eye infections, gonorrhea, chlamydia, periodontitis (gum disease), and others.

Doxycycline is also used to treat blemishes, bumps, and acne-like lesions caused by rosacea. It will not treat facial redness caused by rosacea.

Some forms of doxycycline are used to prevent malaria, to treat anthrax, or to treat infections caused by mites, ticks, or lice.

Many people associate PTSD with war veterans, but people can develop the disorder as a result of having experienced any type of extreme trauma, such as sexual abuse, a road traffic accident or a natural disaster. Not everyone who experiences trauma will develop PTSD, but those who do often experience hyper-vigilance, flashbacks and nightmares.

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People diagnosed with PTSD are usually treated with talk therapy, such as cognitive behavioural therapy (CBT) or eye movement desensitisation and reprocessing (EMDR). But talk therapy is expensive and time consuming, and it doesn't work for everyone. If we could find a cheap, effective way to prevent or minimise the symptoms of PTSD, that would surely be a boon.

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Hindering negative memories

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Recent studies have found that, to form memories, our brains need proteins outside nerve cells, called matrix enzymes. Matrix enzymes are found throughout the body, and their over-activity is involved in certain immune diseases and cancers outside the brain.



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To treat these diseases, drugs have been developed that block these enzymes, including doxycycline. We wanted to know if doxycycline could be used to block the activity of matrix enzymes and hence prevent – or weaken – the formation of negative memories.

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To test this theory, we recruited 76 healthy volunteers and randomly assigned them to either receive doxycycline (200mg) or a placebo. As the trial was "double blind", neither the participants nor the investigators knew which pill the volunteers had received.

Having received a pill, the participants then took part in a computer test in which one screen colour was often followed by a mildly painful electric shock and another colour was not.



A week later, the participants returned to our lab. They were shown the colours again (40 times), this time followed by a loud sound but never by shocks. The loud sounds made people blink their eyes – a reflexive response to sudden threat. We then measured the activity of the ring muscle that closes the eye, to quantify the startle response.

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