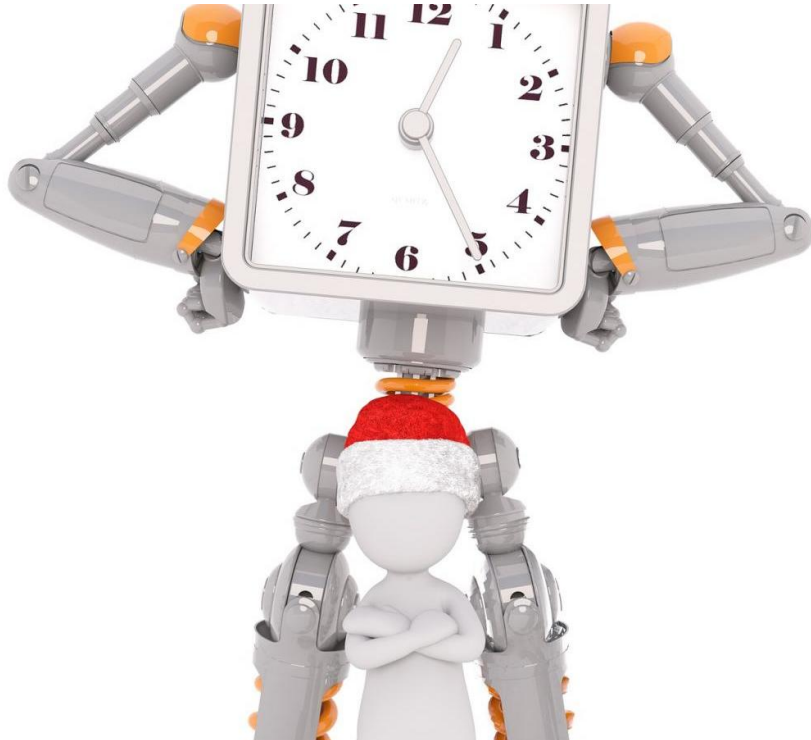


Body clock link to steroids discovered

September 4 2018



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Professor David Ray, from The University of Manchester, lead the research which found that out of 752 genes which regulate lungs in mice, 230 genes work only in the day and only 197 at night.

And in the liver, where doctors have long thought that steroids are influential for many side effects, 1,702 genes regulate the organ in the

day and a mere 299 at night in mice.

The research could one day have important implications on the way steroids—one of the most common drugs in medicine—are prescribed.

Published in the *Journal of Clinical Investigation*, the study is funded by the Wellcome Trust and the National Institutes of Health in the United States.

When $\text{Rever}\alpha$ - a molecule that controls the time of day effect is removed, the liver flips its genes so that more genes are regulated at night than during the day.

The removal of $\text{Rever}\alpha$ also seemed to have a protective effect against the build up of fat in the liver—known as fatty liver.

And that, says Professor Ray, could be important as daytime genes regulate [glucose metabolism](#) whereas night [genes](#) regulate [fat metabolism](#).

Fatty liver is common, leads to diabetes, and can result in serious [liver damage](#), including cirrhosis, if it progresses.

Professor Ray said: "Steroids are the most potent anti-inflammatory agent known to medicine. They are widely used and are very effective and used to treat a wide range of conditions.

"We can't yet say that this research confirms that taking steroids at different times of the day will impact on things like side effects.

"But this is clearly an exciting advance in the way we understand how [steroids](#) work."

He added: "There are experimental drugs which have been targeting Rev α in animals.

"But now we hope to move on to measuring effectiveness and side effects on human tissue."

REV-ERB α Couples the Circadian Clock to Hepatic Glucocorticoid Action is published in the *Journal of Clinical Investigation*.

More information: Giorgio Caratti et al, REVERB α couples the circadian clock to hepatic glucocorticoid action, *Journal of Clinical Investigation* (2018). [DOI: 10.1172/JCI96138](https://doi.org/10.1172/JCI96138)

Provided by University of Manchester

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