

Resource

# Chronotherapy: The science of timing drugs to our body clock

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through lack of use.

Rheumatoid arthritis is driven by cells in the immune system such as lymphocytes. These cells each have their own clock, and their inflammatory response varies depending on the time of day. Even when we remove them from the body and look at them in a dish, they still keep a day/night rhythm.

David Ray, Professor of Medicine at the University of Manchester.

The production of hormones is also known to vary throughout the day [this is known as diurnal variation].

Some of the drug therapies for treating rheumatoid arthritis are very strong, and there are possible side effects.

The processes that drive the disease are only active for part of the 24-hour cycle – so if we get our potent drug in at the right time we can avoid exposing patients to toxic drugs throughout the day.

Professor Ray

A trial being carried out at the University of Manchester is trying to determine the best time to deliver drugs. In this way, they will only work to dampen the immune system when needed.

Although the concept of timing medical treatment to fit in with our natural rhythms is still unusual, it is one that is gaining ground with more doctors as they realise the importance of our body clocks.

We do have some examples of this in drug therapy already. The slow release of some Non Steroidal Anti-Inflammatory Drugs (NSAIDs) allows better relief of morning stiffness. Recently a delayed-release preparation of Prednisolone (Lodotra) was produced to have its maximum action in the early hours of the morning when the body's own release of cortisone is at its lowest. A lower dose of this Prednisolone was more effective and had less side effects than conventional doses of Prednisolone taken in the morning.

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