

The 'slinky' drug dispenser that will 'banish eyedrops'

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A tiny coil which is implanted in the eye could mean an end to the injections and drops used by thousands of patients with common eye complaints.

The spiral-shaped coil, so small it can be inserted through a hollow needle, can be loaded with drugs to treat conditions such as glaucoma and diabetic macular edema.

The drugs are mixed into a material which coats the device - and as the coating slowly dissolves they are released over a period of up to two years.

Drop-out: Eye drops could be consigned to history, replaced by a spiral-shaped coil that dispenses drugs from within the eye

The device, known as the I-vation, has been developed to help those who suffer from common conditions affecting the retina, which sits at the back of the eye.

Unlike diseases of the front of the eye, where drugs can be delivered in eye-drops, diseases affecting the retina (such as age-related macular degeneration) require a different approach because drops rarely penetrate deep enough.

Although there are effective new drugs for these retinal diseases, they have to be given by direct injection into the back of the eye.

And because of the relatively short life of the drugs, these often uncomfortable injections must be repeated every month, a regimen which many patients find hard to tolerate.

The I-Vation is spiral-shaped, similar to a Slinky toy, and made from a metal alloy. The small diameter of the implant means it can be injected into the eye using a needle in a minimally invasive procedure that takes just 15 minutes.



Slinky: A miniature version of the child toy could stop the invasive eye-drop regiment

The device is coated with a synthetic material that incorporates the drugs. As the coating breaks down, it releases drug particles into the eye.

The design and thickness of this material can be adjusted so it degrades at the required rate. The spiral shape means there is a large surface area available for the drug coating, allowing the release of drugs for up to two years.

The coiled shape also makes it possible to lodge the device against the white of the eye, without the need for stitches.

It will be out of the line of sight of the patient, so it cannot be seen. It can also be easily removed and replaced.

THE macular is the part of the retina responsible for seeing fine detail, and around 10 per cent of diabetics develop macular edema, in which a build-up of fluid and protein causes the macular to swell, distorting vision.

Results from an early study showed that after six months the vision of all of the edema patients was either the same or had improved.

Other trials are planned for conditions such as age related macular degeneration, but no date has been set for when the device could be available.