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Australian startup develops new hormone sensor to streamline IVF process

11 March 2026 | News

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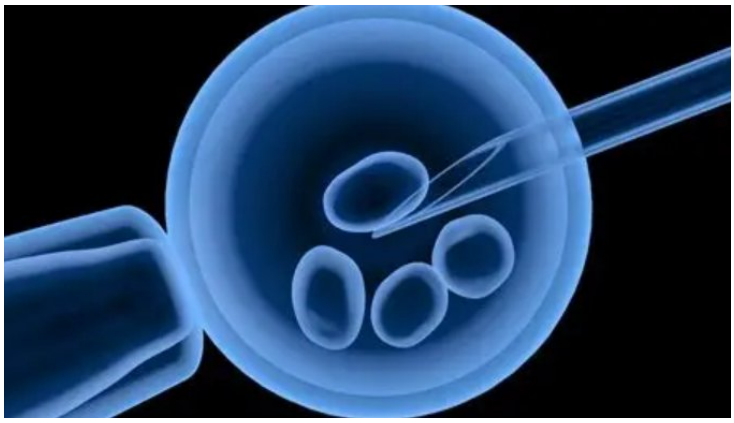

A Melbourne-based startup is developing a new wearable device, in partnership with the University of Melbourne and Monash IVF, to help reduce fertility treatment costs and patient pain.

When preparing for egg collection or an embryo transfer, IVF patients rely on their clinician to closely monitor hormone levels to ensure the procedure is timed precisely when progesterone, estradiol and luteinising hormone levels are optimal, giving the patient the best chance at conception.

Currently blood tests are the primary method of measuring progesterone levels, requiring patients to undergo multiple blood draws at a laboratory during certain stages of their menstrual cycle. However, this approach has several limitations. For example, if testing falls on a weekend, when most labs are closed, IVF providers are forced to choose a less optimal testing time, potentially affecting treatment precision.

University of Melbourne alumni Edgar Charry and Muhammad Umer, whose partners have lived experience of infertility, created a reproductive health solution by developing a biosensor that can detect progesterone and estradiol levels using fluid found in the skin, rather than in the blood.

Their startup company ‘Symex Labs’ has partnered with the University of Melbourne to translate their research into a commercial product.

“Our biosensor will eventually be worn as a patch and will work by penetrating the skin using small microneedles to attract progesterone molecules in the patient’s interstitial fluid. These molecules will bind to the surface of the probe, generating electrical activity. The technology then translates the electrical activity to progesterone levels, ultimately informing the IVF clinical team if the patient is ready for embryo transfer. This data will be sent directly to the clinic’s monitoring system, allowing IVF nurses to review the results and advise the patient”, said Symex Labs co-founder Edgar Charry.

The research has received $2.5 million in funding from the federal government, the University of Melbourne's Genesis fund, Monash IVF, RMIT and Breakthrough Victoria. The first in-human pilot study is expected to get underway within the next 12 months, with commercialisation plans slated for early 2028.