

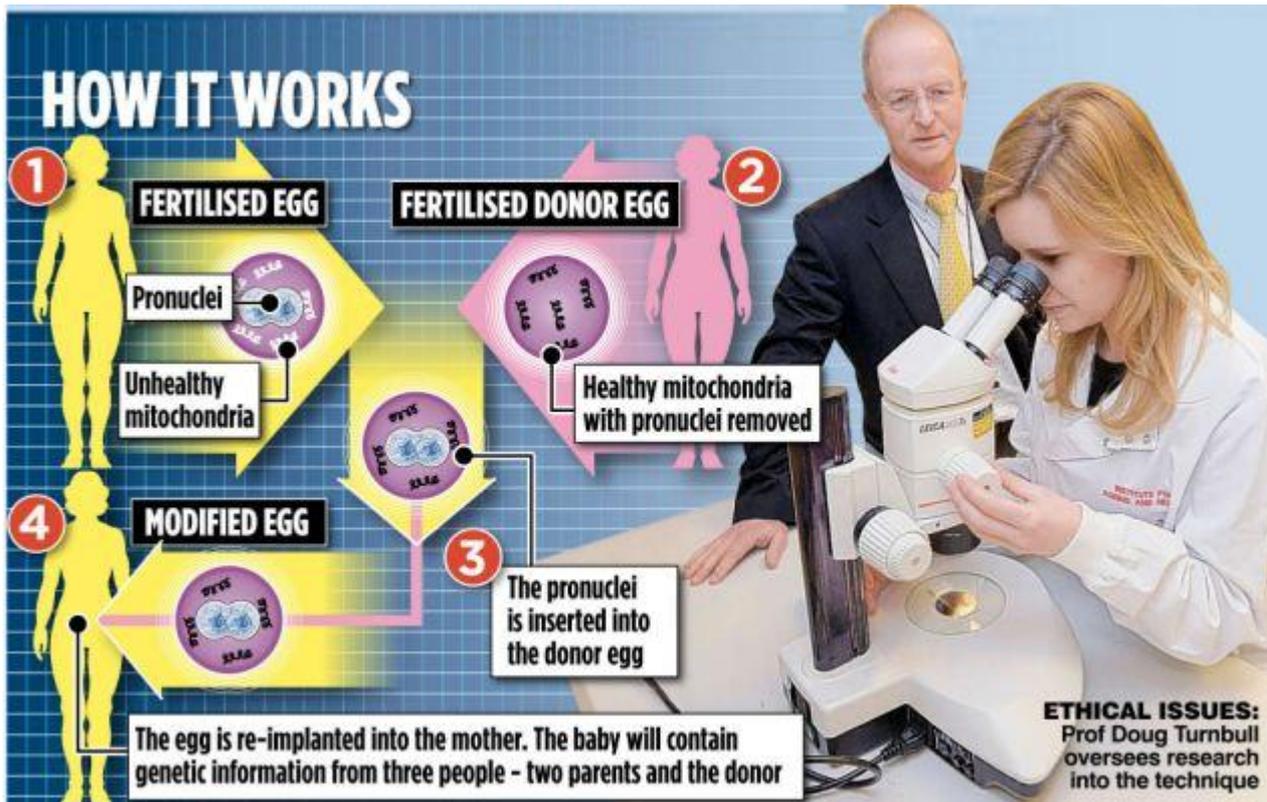
## The three parent baby: Doctors press for change in law to allow controversial 'Frankenscience' which uses hybrid egg from TWO women to stop genetic faults

- **Scientists use two eggs to stop transfer of genetic diseases to unborn child**
- **Procedure is currently banned, but could be recommended within weeks**

By Jo Macfarlane Daily Mail

Doctors pioneering a controversial IVF technique which creates babies with three biological parents have defended their work, calling for the Government to approve the procedure.

The Human Fertilisation and Embryology Authority is set to inform Ministers within weeks whether it will recommend that the technique can be used – a move that would break new boundaries in both science and ethics. The procedure, currently banned, involves transferring the fertilised centre of one woman's egg containing faulty DNA into the healthy egg of a second woman.



It has been designed to prevent mothers passing on a range of incurable genetic diseases to their children, such as liver, brain and heart conditions. But critics have labelled it a 'Frankenscience' technique, with unknown side effects, which will leave children with DNA from two different mothers. Now, as the HFEA prepares to publish the results of its public consultation into the procedure, doctors who developed it have argued the therapy should be legal. They say families should be allowed to choose whether to use the technique – in full knowledge of the potential risks, as it has still not been tested on humans.

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Neurology professor Doug Turnbull, who led the research team at Newcastle University, said: 'What we're trying to do is help people have healthy children, and it's not appropriate for us to pre-judge. This way people have a choice. Everyone takes risks all the time when they make reproductive choices – no one is guaranteed a healthy, risk-free pregnancy, however you go about it.'

'We need to continue the research to determine the safety and efficacy of the procedure. We have tested it on mice, not humans, and there is, of course, a risk that there will be unforeseen side effects. I can understand those who say this is Frankenscience. But people with those views tend to be the same ones who are against IVF and any research in this area.'

The treatment is designed to get rid of faulty genes carried in structures known as mitochondria, passed down to babies from their mothers. Mitochondria are contained in all human cells and provide them with energy. If faulty, they can cause a range of debilitating, often fatal, diseases that cannot be cured. The procedure involves taking the fertilised egg of a woman affected by faulty mitochondria and removing most of the genetic central material, or pronuclei. This is then transferred into the healthy egg of a second woman. Tests on mice have proved the animals are free from faulty genes – and from adverse side effects – up to ten generations later. But so far, the law in the UK has permitted laboratory tests on human eggs only up to a certain stage after fertilisation. None has so far been implanted back into a woman or led to a birth. Any child conceived in this way would inherit genes from three parents because a tiny amount of DNA from the second woman’s egg would be passed on. However, 99.8 per cent would still be from the infant’s mother and father. But critics warn – and the researchers admit – that the consequences for future generations are as yet unknown. Niall Gooch, a spokesman for the pro-life charity LIFE, said: ‘The problem is, these techniques strike at the heart of the individual’s reasonable expectation of a normal family life, where the child is able to develop a relationship with both father and mother.’

‘We simply do not know whether or how the creation of “three- parent” embryos will affect future health outcomes for individuals.

‘The creation in a laboratory of an individual with three genetic parents has potentially grievous repercussions for the identity and healthy self-image of the individual in maturity.’

The HFEA will report to Ministers at the end of March, and if Health Secretary Jeremy Hunt decides to approve the therapy it could be put to a vote in Parliament. Prof Turnbull said: ‘If we want to practise it, we need a licence from the HFEA. This is why we need a vote in Parliament. It’s important that happens because we don’t want to have to wait for Parliament to approve it if we’ve reached a stage where patients could really benefit. Is it right that patients have to wait?’

‘What’s a real concern for me is that Ministers will just sit on their hands and not bother pushing for a vote.’

## CASE STUDY

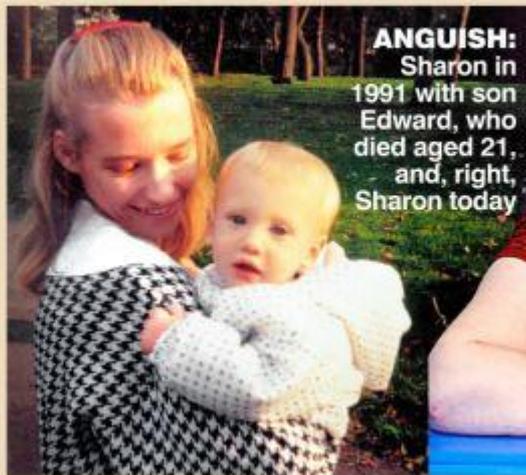
# I live with the heartbreak every day of losing my eight children

SHARON Bernardi knows all too well the pain of living with mitochondrial disease. The 47-year-old, from Sunderland, has lost eight children to genetic conditions – six of them within hours of birth and another which she was forced to abort at 21 weeks because of severe defects.

Her only surviving son, Edward, died in 2011 aged 21 after suffering from Leigh’s disease, a rare hereditary condition affecting the brain and nervous system.

If the technique to get rid of mitochondrial disease is approved, it will come too late for Sharon. She says: ‘I will just be pleased no one has to go through the pain I did.’

‘I live with heartache every day. People say time’s a great healer but I don’t think that’s true. I can remember every



detail and I mark each of their birthdays. If I’d had access to this new procedure, it would have saved me, my husband and my family from so much suffering.

‘If we have a cure for this disease, it’s so much better than

delivering a baby and it dying. My message to the decision-makers is: Think carefully, and save another such tragedy.

‘People shouldn’t think negatively. It’s everyone’s right to have a healthy child.’