

# The champion for maternal health

Genesis Research Trust's leading fertility expert, **Professor Robert Winston**, discussed maternal health and the organisation's current research advances with *Research Features*.

**F**ollowing numerous TV appearances and countless years of medical research, Professor Robert Winston has become the friendly face of science in the modern era.

However, away from the limelight, he is not only a massive advocate for charity-based scientific research at Genesis Research Trust, but he is also a huge ambassador for women and infants' health.

He sat down with us at *Research Features* to discuss how women's health has changed throughout his time as a researcher, while highlighting any areas where he feels further work is required.

*Hello Robert. Thank you ever so much for agreeing to talk with us today. Could you tell us a bit about the work you are currently doing at the Genesis Research Trust related to maternal and infant health?*

The most dangerous journey we all take is the four inches down the birth canal, as that is actually where most people get damaged or die. That damage can have a very long-term effect on future health even when you're 60 or 70 years old, so the research we do at Genesis Research Trust is vital to understanding how we can prevent this.

The Genesis Research Trust has really evolved from what used to be called The Institute of Obstetrics and Gynaecology which was founded after the Second World War. It's always been a major hub for research and is probably the leader across Europe for the work it does in all aspects of women's health. This involves pregnancy, fertility, delivery, early growth of babies and cancers which only affect women. My work at the moment is mainly involved with fertility and I am currently looking into embryology and at how sperm develop.

*Are there any other areas of medical research that are beneficial to your current research?*

Definitely. Embryology has more complex and advancing aspects to it that are not just involved with fertility but involve the whole of health and medicine. Recently, I've been very interested in using gene modification techniques within animals, such as mice and pigs, to create organs that can be used for human transplantation without the risk of rejection. Although the pigs would be completely normal and totally healthy, these techniques could allow us to find new hearts, new livers, new lungs and new kidneys to use safely within humans.

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four inches down the birth canal** ”



*That would be incredible! It is amazing how far and fast science is progressing – which areas of maternal and infant health do you think have changed the most in your time as a researcher?*

When I first started working here back in 1970, the test for pregnancy was to put a pregnant woman's urine in contact with a toad to see whether it ovulated. Nowadays, however, we can actually test the specific hormone in minute quantities – even in only a single droplet of urine. It's remarkable.

I think the early detection of cancer has been one of the greatest advances in medicine. Great strides have been made in the understanding of pre-cancer in the cervix, in conditions such as cervical intraepithelial neoplasia, and this has been due to the cancer smear test – one of the best pieces of early cancer detection in women's health. These tests have allowed us to find that cervical cancer can be caused by viruses, and brought on by particular irritants.

Since they were first introduced, smear tests have become more and more sophisticated, so we can now look in much more detail at individual cells to treat specific areas of the cervix in a way that prevents the disease from developing. Ultrasound has also been a major improvement in women's healthcare because you can look at the ovaries, the uterus and the baby, but also screen for tumours as well. It's advances such as these which have changed people's lives.

*Are there any areas of women's health you feel need further research or development?*

It's difficult to say really but at the moment there is a lot of interest in stillbirth.

One of the great tragedies is to go right through pregnancy and then have a dead baby at the end for no apparent reason. Maternal death is now very rare, but there are still too many babies dying early.

The most common cause for this is premature labour – if a baby is born before they're ready at 40 weeks of pregnancy, this could not only increase the likelihood of early baby death, but could also lead to the baby suffering from a severe disability or potentially even brain death.

One of the most extraordinary advancements in reproductive medicine has been the discovery of fetal-programming. We've known for a long time that a mother who smokes, drinks excessively or takes



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recreational drugs during pregnancy can damage the foetus – however, we now realise that other factors such as extreme stress or poor nutrition during those nine months can also affect the unborn baby's life-chances.

Intervention at the very early stages of human development could save a generation of people from diseases affecting not only their mental health but also their physical health.

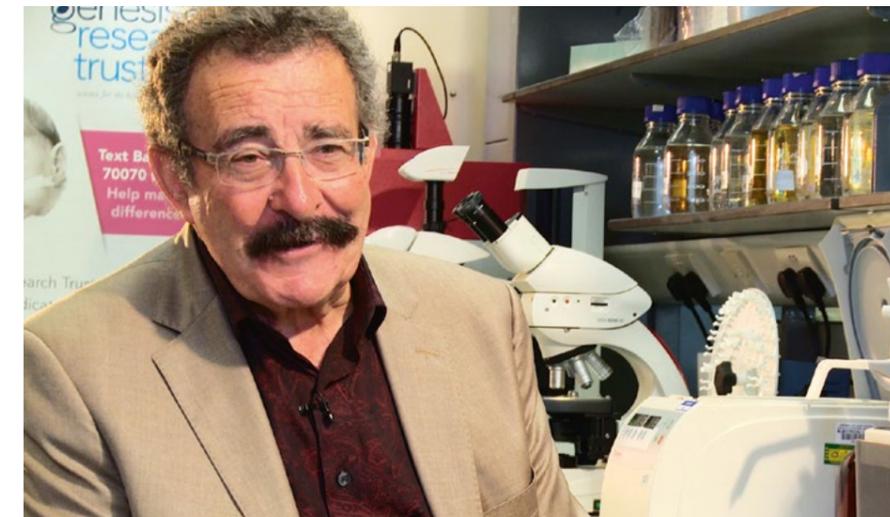
*And how about with issues surrounding miscarriage?*

Miscarriage is really important because it's

extremely common. One in four pregnancies are lost nowadays which, to the woman losing her baby, is a massive catastrophe. This can lead to mental health issues such as anxiety which could be missed by clinicians because of how common miscarriages have become. When women miscarry they just go to hospital, have their womb scraped out, and nobody really talks to them about it or considers how serious it is on their mental health, because everyone's busy doing supposedly more important medical research. Very often, miscarriage gets completely neglected – people don't look for the cause of it and don't have any clear ideas about how different causes can be treated.

*Do you feel more research needs to be done then, focusing on how to prevent miscarriages?*

Well, my early work was actually largely involved with miscarriages. What we were doing 25 years ago was really the first treatment for people who were miscarrying repeatedly – this allowed us to screen the embryo for the right genes and for the right chromosomes, which tied with my other research looking at the detection of genetic disease in embryos. More recently though, we have made great strides towards understanding the cause of miscarriages and we now know that certain bacteria are vital for changing how and when women go into labour. This, as I've already mentioned, can be important in preventing premature birth and the potential disability and mortality problems that come with that.



*That sounds encouraging. In terms of healthy baby deliveries though, do you think the emotional ill-health of pregnant women is sufficiently recognised by practitioners? Or should there be more to raise awareness around this?*

I think the biggest problem is in depression after delivery and that's now a very common issue. There are a large number of women who are really quite self-sufficiently unhappy after they deliver – they can't breastfeed and they'll have an increased response to anxiety around them. We are now beginning to understand the hormonal basis to that – but that is only one part of the story.

*With all of this emerging research, how important is it to consider the ethics behind the potential treatments, particularly in areas of women's health related to fertility issues like IVF?*

We need to be very much aware of the ethics of all these treatments, and not just in IVF – I would say we're probably too aware of the ethics of IVF in the wrong sort of way. We understand very well the need to be highly cautious when making sure people don't get the wrong sperm or eggs, and to make sure people aren't treated as if they're ridiculously old or too young. I think a much bigger responsibility is in the commercial process, but that we can't control.

*And what about the ethical issues from a clinician's perspective when dealing with miscarriages or stillbirth?*

There are a number of huge ethical issues a clinician has to consider, especially when caring for a new-born child that may not survive and, even if it does survive, could live its life with brain damage. Do you switch

the life support machine off or do you hope it might get better, even though you can't predict what's going to happen? These are the problems our clinicians are faced with every single day and they are very difficult to handle.

If you would like to see the full video interview with Robert Winston, please visit <http://researchfeatures.com/>



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