

Assisting reproduction – Thinus Kruger

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'We are very much hands-on and combine research with practice,' says Thinus Kruger of his work on infertility.

Kruger, professor and head of the Department of Obstetrics and Gynaecology at Tygerberg Hospital and Stellenbosch University, also runs with senior specialist colleagues Kobie van der Merwe and Igno Siebert, the Institute for Reproductive Medicine at Vincent Pallotti Hospital (established in 1983), where the *SAJOG* caught up with him early on a busy Friday morning and already a full waiting room.

'We see people not only from South Africa here, but also many people from Europe – in particular ex-South Africans, who find it cheaper and more convenient to come here,' he says. 'The technology is as good, if not better, than elsewhere in the world.'

Kruger and his team count to their names a number of firsts for South Africa and Africa, among them the first *in vitro* (IVF) conception and birth in Africa (April 1984) and the first conception and birth after a true intracytoplasmic sperm injection (ICSI) procedure in South Africa (October 1995).

'A normally fertile couple has about a 10 - 15% chance of conception in a month, while these procedures (IVF or ICSI) offer a chance of conception of 40% and more.'

Kruger has also received many accolades for his work, including the Steptoe Memorial Gold Medal from the British Fertility Society, and most recently the Gold Medal from the South African Academy for Science and Technology for scientific achievement in the field of infertility.

Kruger comments that between 10% and 20% of couples need to seek help to conceive and of these the reason for reduced fertility lies approximately equally between the females and males.

'There are several reasons for a failure to conceive and we study these to try to understand and see how to overcome them,' Kruger says, adding that he is particularly interested in male infertility. 'We have for example, done some studies on how the sperm binds to the egg shell and on selecting the best sperm out of sample.'

However, it is only a small percentage of couples who need to go on to full treatment – much fewer than half of those presenting at the clinic. 'We are finding increasingly that lifestyle issues are playing a role,' Kruger says. 'Alcohol, drugs, smoking, diet and a sedentary lifestyle can all impact on fertility.'

As a result a key element of treatment is 'a 90-day detox'. Says Kruger: 'Infertility due to many of these factors is reversible. It takes 70 days for new sperm to develop, and in many cases lifestyle changes bring success, whether at home or in the clinic, and so we like to put a lot of emphasis on that.'

For couples who need to go on for treatment the choice will depend on the findings of the tests, but the

most commonly used are IVF and ICSI. In the case of IVF as many eggs as possible are harvested and fertilised, but only the best is implanted back into the female.

Kruger describes ICSI, which is indicated for a low or zero sperm count (i.e. too low for spontaneous conception), as the 'biggest breakthrough' in infertility treatment of the last decade. 'And if we are able to choose the best sperm then the chance of success of the ICSI will be increased.'

Kruger firmly dismisses any notion that a child conceived via fertility treatment is in any way inferior to one conceived spontaneously, saying: 'The chance of congenital abnormality is the same as in normal conception.'

Looking ahead, Kruger says that there is still much that is not understood in fertility. 'For example, we don't understand what causes sperm head defects and we are studying that,' he comments, adding that interestingly similar defects have been observed in large cats, including lions and cheetahs, which have been inbred.

Another area that is of growing interest, Kruger says, is the freezing of ova. 'This has become possible only in the last few years and it offers the possibility of protecting fertility against disease and treatments such as chemotherapy.' And another is to understand the lifestyle impacts on fertility and, perhaps the most complicated to unravel, is a potential genetic association. 'So far we have not found a gene associated with idiopathic male infertility,' Kruger says. 'If we did we could test for infertility and possibly modify the gene. But at this stage gene therapy is very futuristic.'