

CASE STUDY

FERTILITY PRESERVATION CLOSER TO REALITY FOR FEMALE CANCER SURVIVORS

Dr Kylie Dunning was named the 2010 Young Investigator Award winner for her work to help preserve the fertility of female cancer survivors.

Kylie, a postdoctoral researcher, examined the role of fat metabolism in the growth and development of ovarian tissue in the laboratory.

"Major advances in medical research have led to improved cancer therapies and increased survival rates in patients, but the use of life-saving chemotherapy and radiation therapy often leads to infertility," Kylie said.

"In Australia, girls as young as 13 years old affected by cancer can have a portion of their ovaries cryopreserved for future use. What we've discovered may increase the chances of these women starting a family later in life."

The latest technology for female fertility preservation involves growing ovarian tissue in a three-dimensional ball of gel in the lab, enabling eggs to grow and develop surrounded by their support cells, known collectively as the follicle.

This technology enables the growth of eggs in the laboratory that can then be fertilised and form embryos as in traditional IVF. In the future, these embryos could be returned to the womb to form a pregnancy and a healthy baby. By using this technology, it avoids having to put back the cryopreserved ovarian tissue, which may contain cancer cells.

Kylie said the use of 3-D follicle growth was extremely promising; however, the growth of eggs capable of forming a healthy embryo and a baby required further development.

"I've found that fats are a vital energy source for follicle and egg development. In fact, we've discovered that increasing the follicle and egg's utilisation of fat during 3-D follicle growth significantly improves subsequent embryo development," Kylie said.

The Young Investigator Award, now in its 11th year, rewards scientific excellence in South Australia's young researchers and their ability to communicate and "sell" that science. As winner, Kylie received The Hon. Carolyn Pickles Award of \$10,000.

In 2010, Kylie was also awarded the highly prestigious Trainee Research Award from the Society for the Study of Reproduction. This international award recognises the best papers presented at the Society's Annual Meeting by a predoctoral or postdoctoral trainee.



Cancer patient Grace Madigan 15 and Dr Kylie Dunning (courtesy The Advertiser)