

New discovery may help to identify the healthiest embryos in IVF treatment

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(PhysOrg.com) -- Australian scientists have developed a potentially groundbreaking new measure of the health of an embryo and the likelihood of a successful pregnancy in IVF treatment.

The research could lead to significantly improved birth rates in [IVF](#) to help the one in six Australian couples experiencing infertility to achieve their dream of [parenthood](#).

It also has the potential to predict the gender of an embryo prior to implantation.

The study conducted by the University of Melbourne and Repromed will be presented at the Fertility Society of Australia annual scientific meeting at the Adelaide Convention Centre today.

Professor David Gardner, Head of the Department of Zoology at the University of Melbourne, said the study related specifically to the glucose intake of embryos from the solution in which they grow in the laboratory.

IVF units use this solution, or media as it is known, to provide a bed of nutrients for embryos fertilised in the laboratory from the eggs and [sperm](#) of couples who cannot naturally conceive. The glucose in embryo solution closely matches that which occurs naturally in the [uterus](#).

Professor Gardner said fertility specialists knew the precise amount of

glucose in the solution before inserting an embryo.

“By measuring the level of glucose on day four or five after fertilisation, we can determine how much has been consumed by a growing embryo,” he explained. “There is clear cut evidence that the greater the glucose intake the healthier the embryo.

“On average, IVF units generate between eight and ten embryos per cycle, of which about half will progress through cell division to what is known as the blastocyst stage after four to five days.

“By measuring the glucose consumption of an embryo, we can better determine which is the healthiest embryo for transfer back to the patient.”

The research involved 50 patients undergoing IVF. Thirty-two of the women had a positive pregnancy test after embryo transfer and 28 babies were born.

“The 28 babies resulted from the embryos which had the highest glucose uptake,” Professor Gardner said.

“Previous studies with animals have shown that the healthiest blastocysts are those with the greatest glucose consumption indicating the likelihood of a successful pregnancy.

“It is exciting to find that this process appears to be the same in people knowing that the glucose in embryo culture media is a major energy source for cell division and is required for biosynthesis to enable cell replication.”

Professor Gardner said another potentially exciting aspect of the research was that female embryos appeared to take up more glucose than

male [embryos](#).

“This is a very early observation, but it may have the potential to help identify gender at early embryo stage,” he said.

World leaders in assisted reproduction have gathered in Adelaide to explore latest research and clinical treatments to help couples experiencing [infertility](#), which is defined as the failure to conceive after a year of unprotected intercourse, or the inability to carry pregnancies to a live birth.

Provided by University of Melbourne

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