

# Artificial Intelligence – Embryo Selection

Selecting the best embryo for transfer can reduce the number of transfer attempts required to achieve a pregnancy through an IVF programme. Artificial Intelligence (AI) is another method introduced of late, to identify embryos that are most likely to result in pregnancy.



## What is Artificial Intelligence and how is it useful in IVF?

Al is a technology that uses deep learning and computer software to assess and rank embryos. Over ten of thousands embryo images with known outcomes were analysed to come up with this Al algorithm. As Al assessment only requires a static image of Day 5 blastocysts (advanced embryo), it is not invasive nor harmful. Within minutes, Al is able to generate a implantation score for each blastocyst. The Al model is specifically for Day 5 blastocysts.

## The difference with regular assessment

Al based embryo selection differs with standard method of evaluating embryos that is performed by embryologists. The embryologists perform morphological observations under the microscope based on the appearance of the embryos; number of cells, the stage of the embryo at time of assessment, and other features visible to the eye.

Studies have shown that AI-embryo selection surpasses embryologists's accuracy in prediciton of embryo viability <sup>[1]</sup>. Having said that, AI is used as an additional tool to aid in the embryologist's decision.



### Who is Al-embryo selection for?

As the purpose of Artificial Intelligence is to identify which are the better embryos out of a cohort, it is most useful for couples who have supernumerary good-quality blastocysts. Our clinic recommends that couples who have several Day 5 blastocysts to opt for AI.

## Can AI assessment only be done on blastocysts for ongoing IVF cycles?

The application of AI on embryo selection in IVF is extensive. AI assessment can also be performed on blastocysts that have been frozen some time ago, as long as images were captured then. This allows for comparisons between blastocysts obtained from different IVF cycles.

#### References

1. ver Milyea, M., Hall, J. M. M., Diakiw, S. M., Johnston, A., Nguyen, T., Perugini, D., Miller, A., Picou, A., Murphy, A. P., & Perugini, M. (2020). Development of an artificial intelligence-based assessment model for prediction of embryo viability using static images captured by optical light microscopy during IVF. *Human Reproduction*, *35*(4), 770–784.