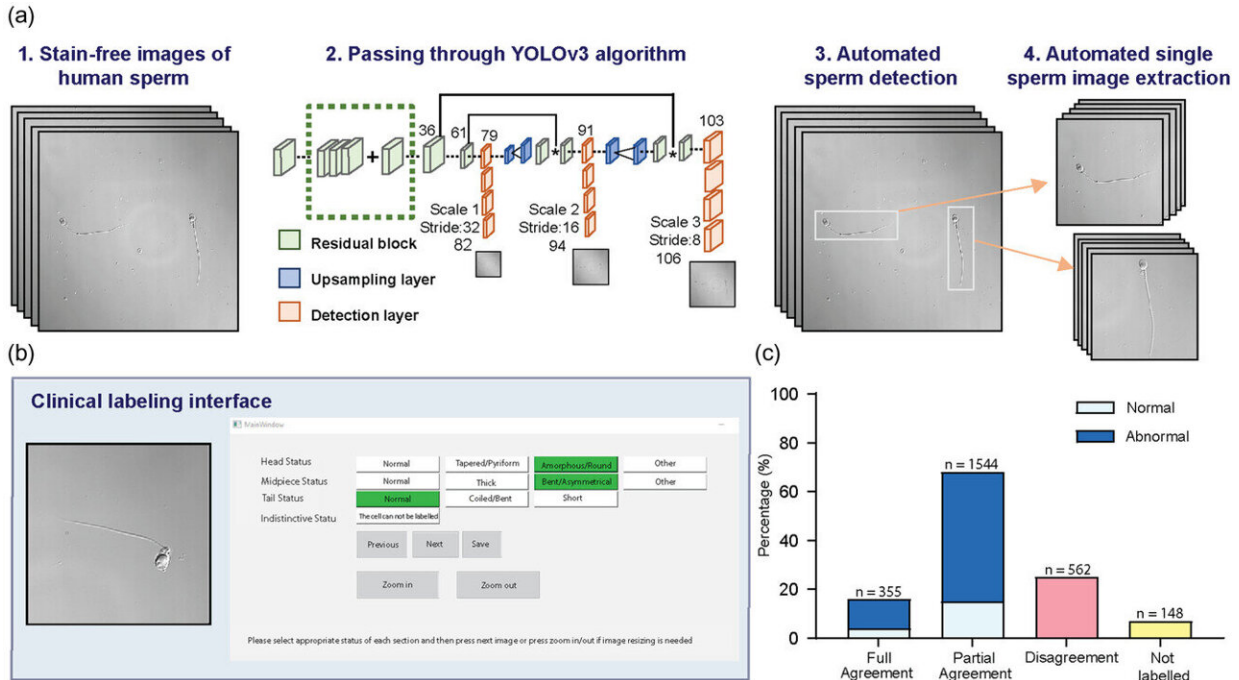


AI sperm checker enhances IVF success

August 15 2024



Creating a clinical dataset of unstained human sperm. Credit: *Advanced Intelligent Systems* (2024). DOI: 10.1002/aisy.202400141

Engineers have developed AI technology that accurately assesses the quality of live sperm in seconds, removing the need for invasive procedures that compromise sperm viability in IVF treatments.

Current clinical practices to evaluate sperm morphology require human analysis and chemical staining of the sperm cells which can cause

damage. But this new method, from Monash University's Department of Mechanical and Aerospace Engineering in collaboration with Monash IVF, works on live, unstained sperm, preserving their viability.

The newly published [study](#) in *Advanced Intelligent Systems*, found the AI model could analyze sperm imaging with over 93% accuracy in just a few seconds.

Dr. Reza Nosrati said the technology could pave the way for standardized sperm selection through automation in IVF clinical settings.

"The consistency and reliability of our AI model provide unprecedented accuracy in live [sperm morphology](#) classification," Dr. Nosrati said.

"By providing a clear and precise analysis of sperm quality, it offers promising opportunities for enhancing clinical sperm selection practices and reducing day-to-day variability in clinics. With this tool, we hope to improve the outcomes of fertility treatments and offer new hope to couples struggling to conceive."

Sahar Shahali, lead author of the work and the Ph.D. candidate, said the technology's adaptability made it a versatile tool for clinics worldwide.

"The technology has been tested and proven to work effectively with images of various resolutions. This means it can be easily integrated into different clinical environments, providing reliable results regardless of the equipment used," Shahali said.

Monash IVF Chief Scientific Officer, Professor Deirdre Zander-Fox, said the technology had the potential to make the sperm selection process faster and improve outcomes.

"Sometimes in IVF, embryologists need to inject a single sperm directly

into an egg to increase the chances of fertilization. While they are experts at finding the best sperm for this process—sperm that's the right shape and size and moves around freely—it can sometimes take hours to sift through a sample to find the best sperm for injection," Professor Zander-Fox said.

"We believe AI can make the process much faster and give patients improved outcomes, while still allowing our highly trained embryologists to have oversight of the process."

"Following on from this research, Monash IVF hopes to create an AI algorithm that could be used to power a sperm selection device to guide our embryologist on which sperm to choose at the time of microinjection to help improve IVF outcomes."

More information: Sahar Shahali et al, Morphology Classification of Live Unstained Human Sperm Using Ensemble Deep Learning, *Advanced Intelligent Systems* (2024). [DOI: 10.1002/aisy.202400141](https://doi.org/10.1002/aisy.202400141)

Provided by Monash University

Citation: AI sperm checker enhances IVF success (2024, August 15) retrieved 15 August 2024 from <https://medicalxpress.com/news/2024-08-ai-sperm-checker-ivf-success.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.