

Sperm Hunter

An AI Assistant for Microdissection Testicular Sperm Extraction

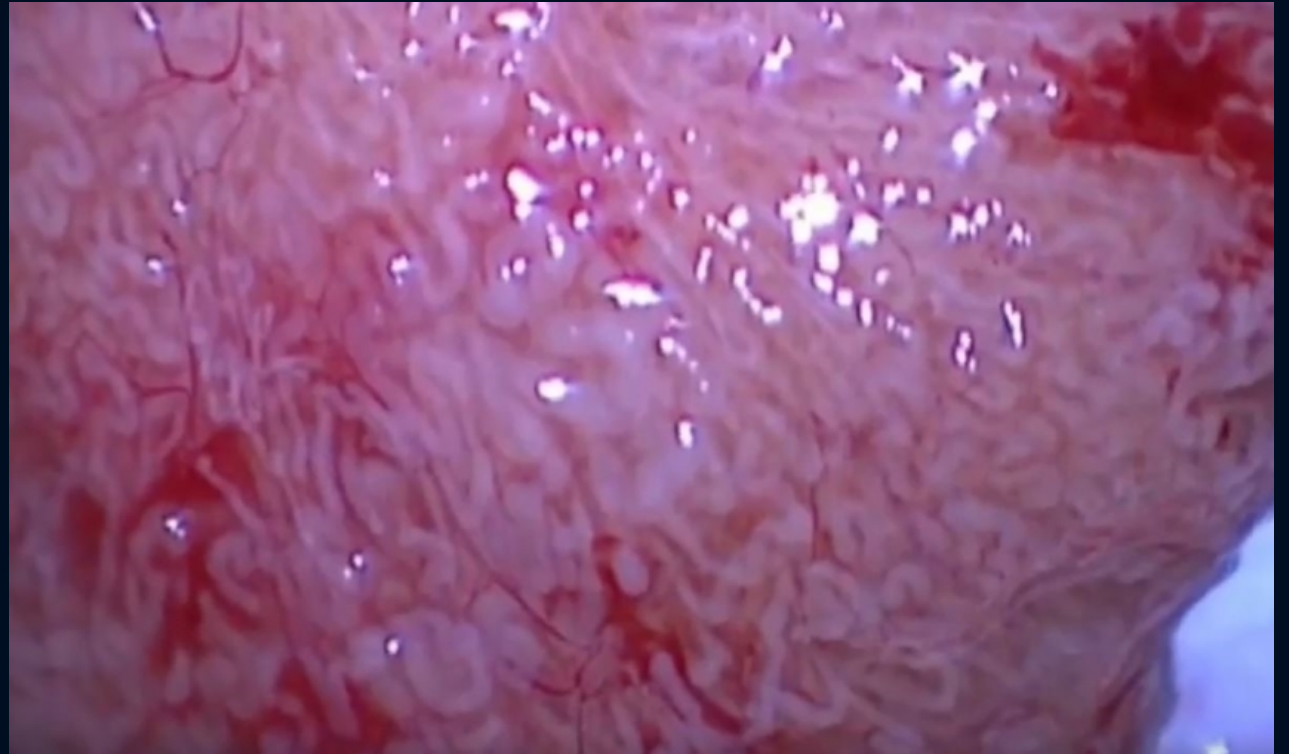
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PAGANI MD, CRAIG NIEDERBERGER MD FACS

The background is a deep blue gradient. On the left side, there is a faint, dark grid pattern. On the right side, there are several concentric, curved lines that create a sense of depth and movement, resembling a tunnel or a stylized eye.

Nothing to disclose

Introduction & Background

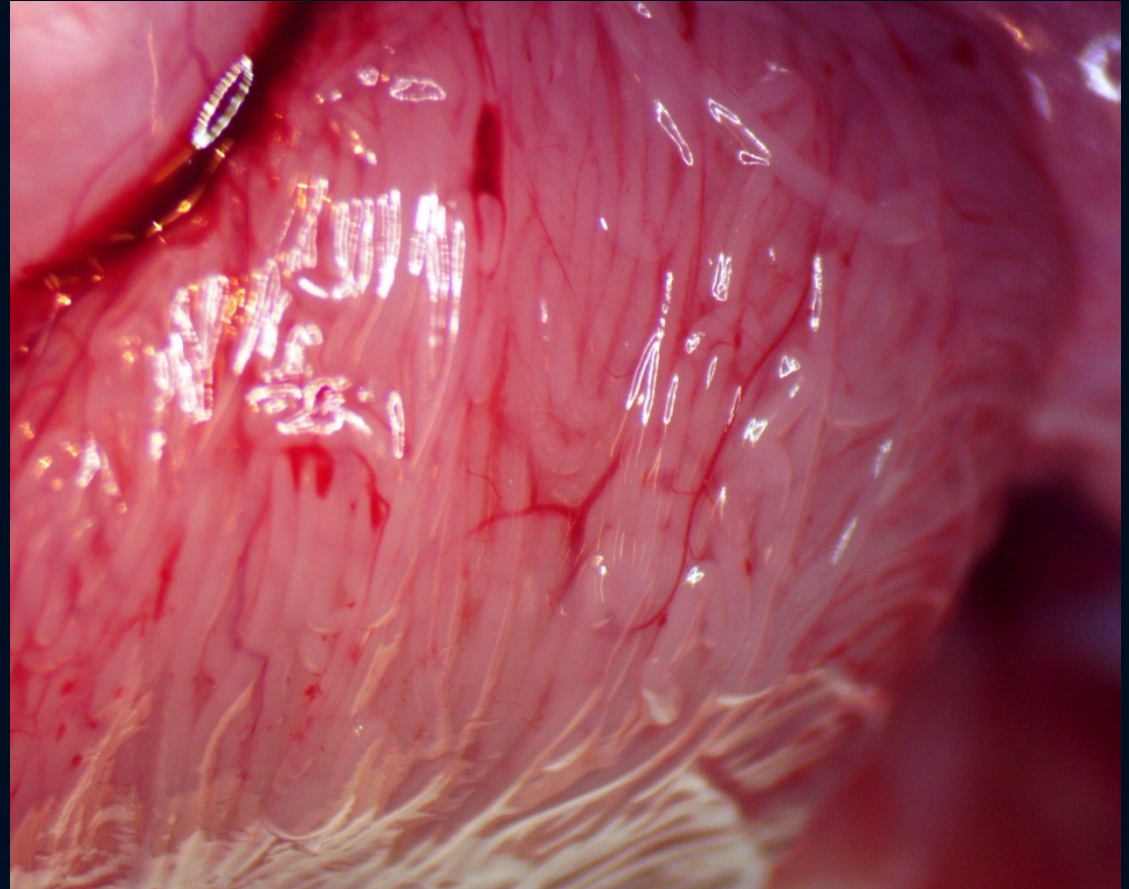
- MicroTESE is the primary treatment for ASD
- Sperm density appears greatest in wide and opaque seminiferous tubules¹



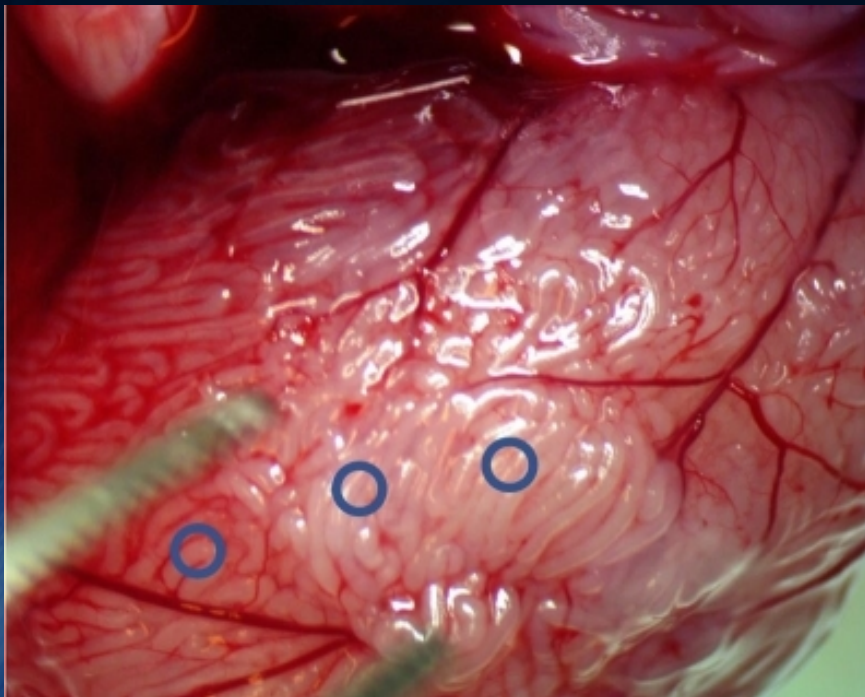
1. Schlegel, Human Reproduction 1999
2. Image: <https://www.youtube.com/watch?v=k65JX-SpLFo>

Homogeneous Seminiferous Tubules

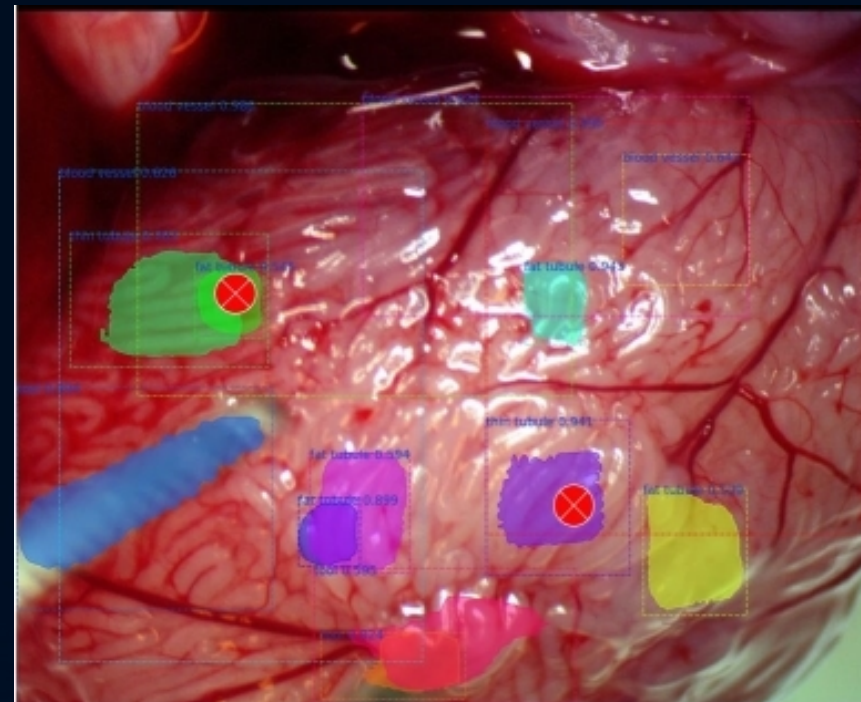
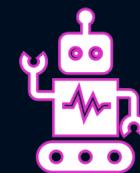
- Known variance in sperm count, but no visual indications.



Proof Of Concept Study

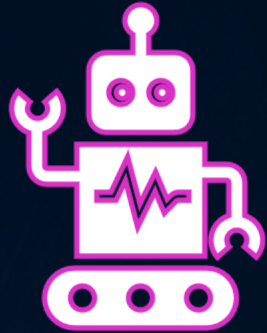


VS

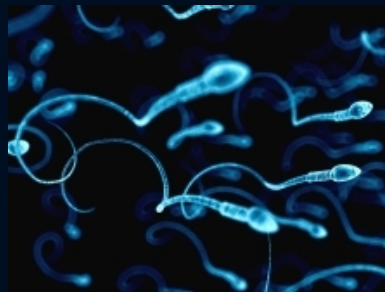


Positive Predictive Value 91%

New Study – Sperm Count Training



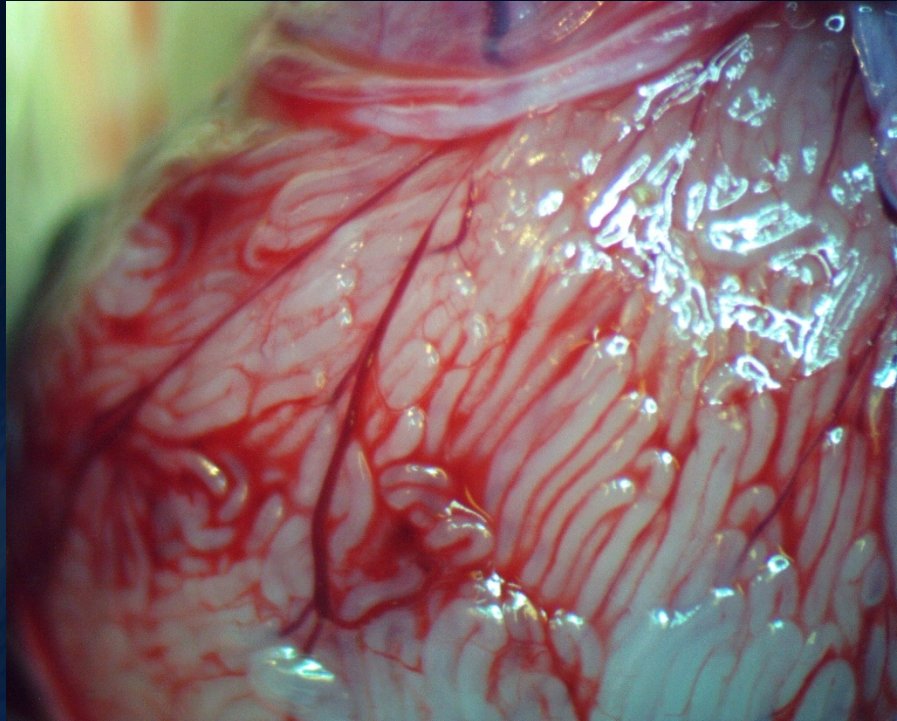
Identify
Wider Tubules



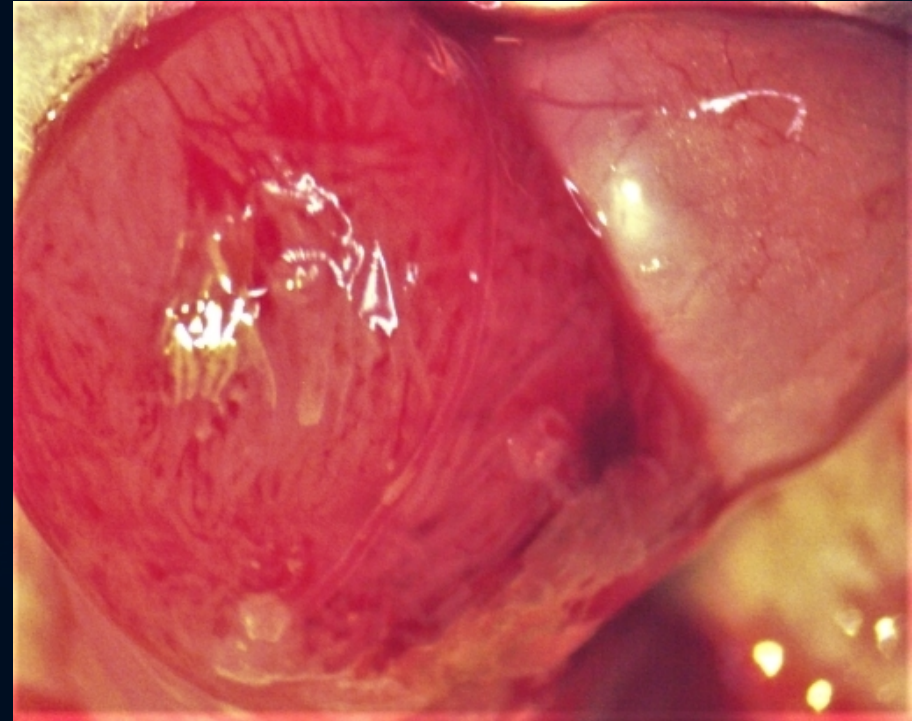
Identify
More Sperm

Rat Model of ASD – Visual Characteristics

Testosterone



Busulfan

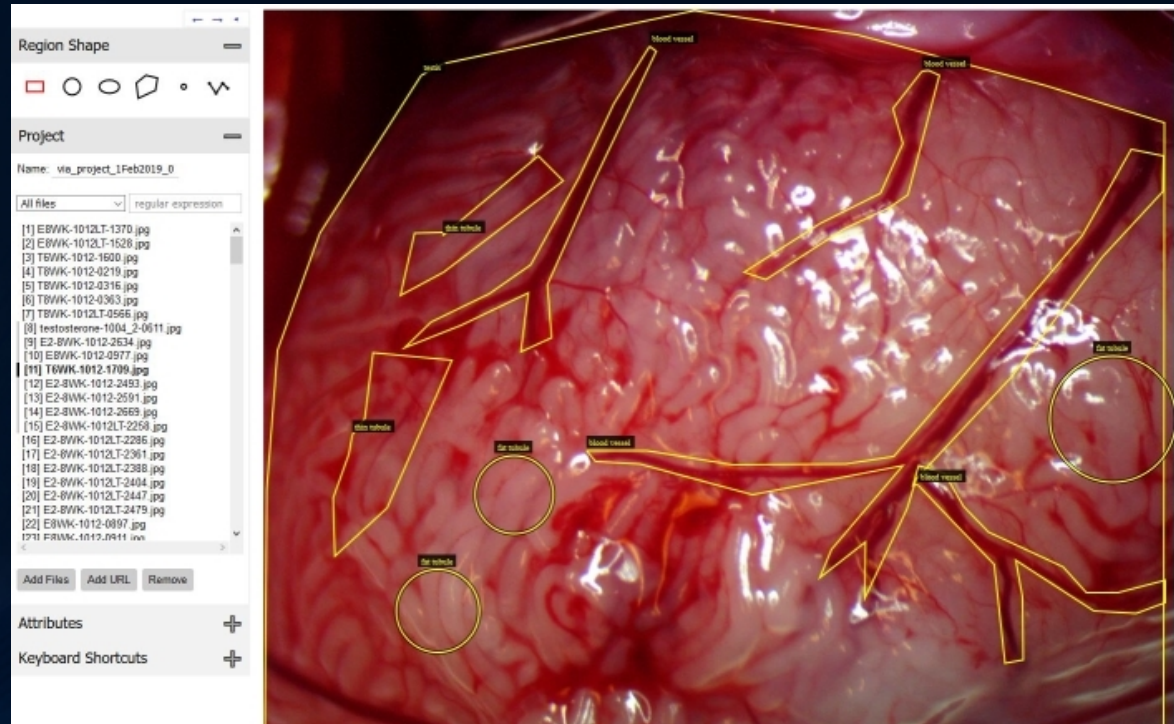


Model Training – Data Annotation

44

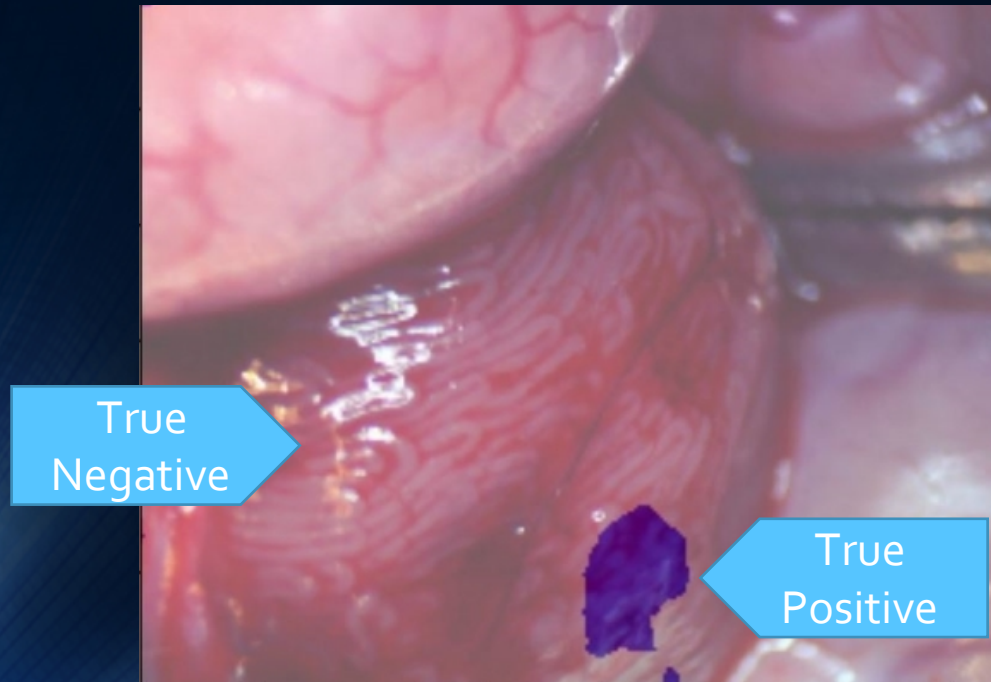
560

3520

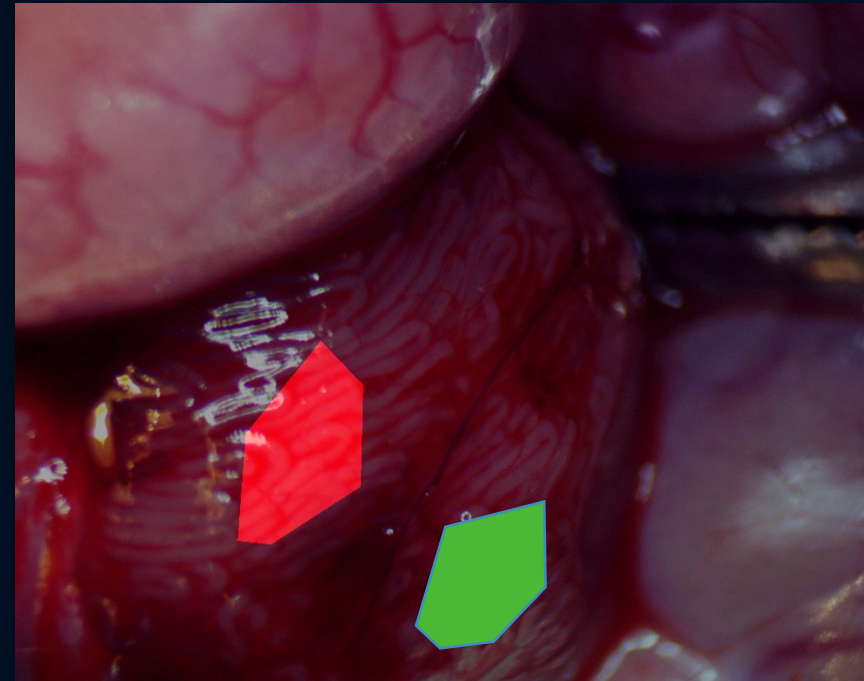


Model Prediction Evaluation

PREDICTED IMAGE



GROUND TRUTH

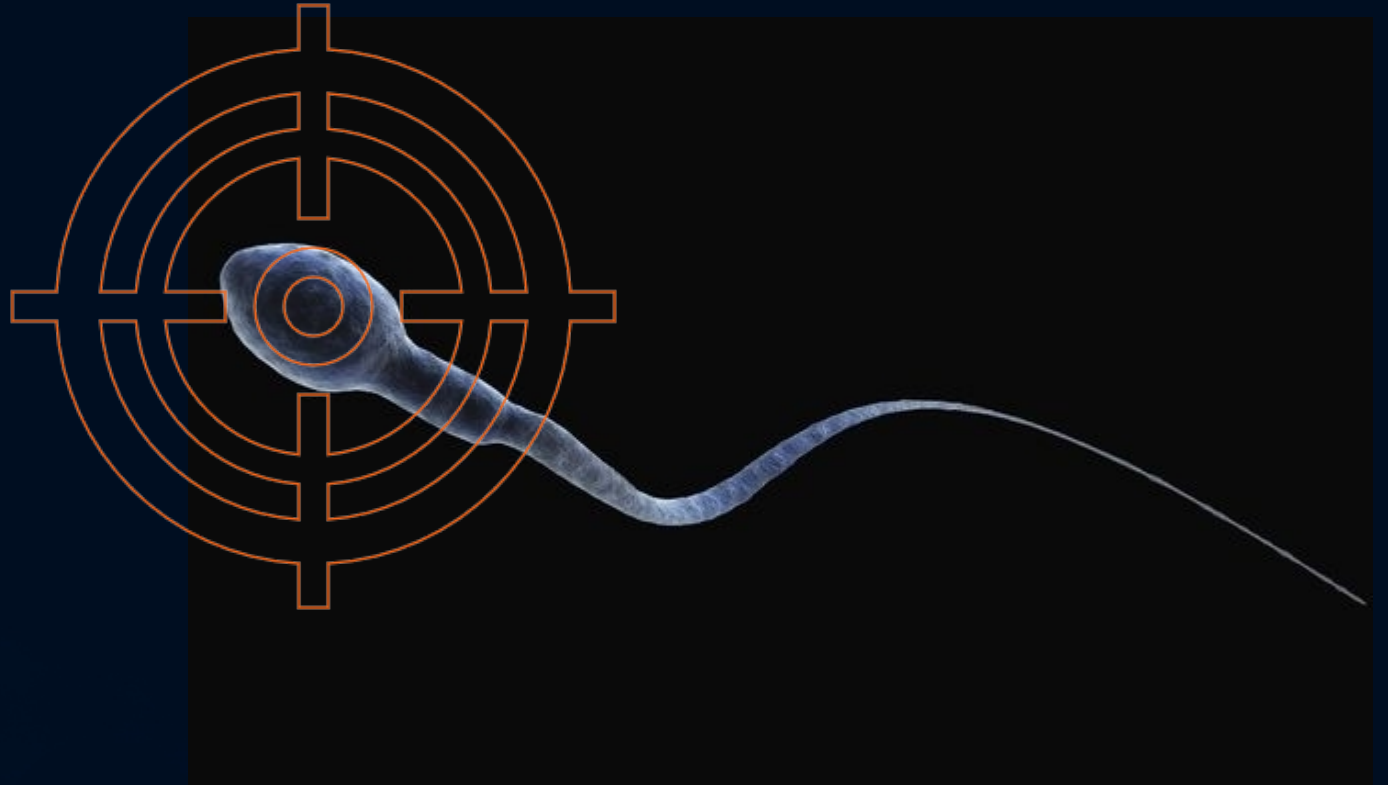


Results

Sensitivity	Specificity	PPV	NPV	Accuracy
78%	72%	80%	70%	76%

Conclusion

- This is an encouraging first step towards an assistant for MicroTESE



Acknowledgements

- UIC Department of Urology
- Dr. Gail Prins

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COLLEGE
OF MEDICINE**

