

# Intra-Technician Comparison of Sperm Morphology Evaluation

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**Objective:** To identify intra-technician subjective variability in sperm morphology assessment at a single site.

**Design:** Intra-technician evaluation of sperm morphology results compared to reported outcome on initial semen analysis using Kruger (Tygerburg) Strict criteria.

**Materials and Methods:** This study was a retrospective analysis of 35 semen sample slides stained using a Romanowski stain (Diff-Quick). Slides were randomly selected for semen samples analyzed January 1, 2018 – February 28, 2018 and numbered (1-35). Morphology assessment was performed by 3 andrologists, blinded to initial reported morphology results. The median percentage of normal forms (normal,  $\geq 4\%$ ) were compared between 3 technicians to the initial reported values. Statistical analysis was performed using One-Way Analysis of Variance (ANOVA) and ANOVA on Ranks using Kruskal-Wallis test, with  $p < 0.05$  considered significant.

**Results:** Median percentage of normal forms was 4% for the initial semen analysis report. Whereas, technician 1: 3%, technician 2: 2% and technician 3: 3%. The median values among the technicians were significant ( $P=0.021$ ). There were no differences between reported values compared to each technician. However, the median results for technician 3 and technician 2 were different ( $P < 0.05$ ).

**Conclusions:** The findings suggest that there is variability in assessment of sperm morphology between technicians. Inaccurate assessment reporting high percentage of abnormal forms for sperm morphology can result in misrepresented sperm data by clinicians. As a result, since low morphology is an indication for intra-cytoplasmic sperm injection (ICSI) during *in-vitro* fertilization (IVF) procedures, ICSI can be unnecessarily ordered. The additional financial cost associated with an ICSI procedure may result in financial and emotional burden for the patient. Furthermore, an incorrect abnormal morphology result leads to emotional strain on the male patient leading to the feelings of inadequacy. An increased frequency of quality assurance training of andrology technicians in groups reviewing Kruger (Tygerburg) Strict Criteria is recommended to limit assessment variability. Randomly selected images of sperm morphology from the Kruger Strict Atlas can be used to assess technician sperm morphology evaluations.

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