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Automated sperm morphometry analysis (ASMA) in the rabbit

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New methods of specimen preparation were developed and a new method of objective, automated sperm morphometry analysis (ASMA) was performed to reduce the technical variation in the rabbit sperm morphology assay. The optimal staining procedure was a modified GZIN stain, which allowed the ASMA instrument to accurately recognize the distal end of the sperm head and to achieve the highest sperm recognition rate (94%). Washing and resuspending sperm to a standard concentration increased the number of sperm per microscopic field in low-concentration samples and reduced the field-to-field variation in all samples. Washing also decreased the number of sperm recognition errors by the ASMA instrument. Mean metric measurements for all sperm were: length, 7.38 microns; width, 3.91 microns; width/length, 0.53; area, 22.10 microns; and perimeter, 19.20 microns. Within-specimen coefficients of variation (CVs) ranged from 0.8% to 5.5% and between-animal CVs ranged from 2.7% to 7.5%. The use of standard specimen preparation techniques and ASMA technology can significantly reduce the technical variation in the rabbit sperm morphology assay.

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