With the advent of ICSI, ultrastructural abnormalities of sperm pose less of a barrier to fertilization, and thus the use of electron microscopy (EM) has decreased. This study was conducted to determine if there are still indications for and value to EM of sperm during the era of ICSI. The history, semen analyses, and EM findings of 55 male-factor patients who underwent EM of their ejaculate between 1983 and 1996 were reviewed. Eleven men (20% of the sample) had normal sperm ultrastructure, while 44 men (80% of the sample) had abnormal EM results. Abnormal EM findings included necrospermia (12/44, or 28%), tail abnormalities (21/44, or 48%), acrosomal abnormalities (9/44, or 20%), neck abnormalities (1/44, or 2%), and incomplete maturation (1/44, or 2%). The EM findings were then correlated with the semen analysis data to determine which parameters, if any, could predict the EM results. Volume, sperm concentration, total sperm count, motility, and percentage of normal forms were compared between the normal and abnormal groups. Only normal morphology varied between the two groups. Patients with a normal EM had significantly more normal forms in their ejaculate (59%, range 48% to 65%) than patients with an abnormal EM (8%, range 0% to 15%) (P < 0.0001). Next, EM findings were correlated with success with in-vitro fertilization (IVF). While patients with normal EM's who underwent IVF were able to achieve a pregnancy, 11 patients with abnormal EM's who underwent IVF failed to achieve a pregnancy. Finally, the EM reports were examined for evidence of inheritable genetic disorders. Five of the 44 patients (11.4%) were diagnosed with immotile cilia syndrome directly as a result of their EM testing. In summary, 1) the best predictor of an abnormal EM is an abnormal sperm morphology (< 13% normal forms by light microscopic examination): 2) An abnormal EM identifies patients unlikely to be successful with IVF, and thus, EM can be an effective screening test prior to IVF, and 3) EM can identify patients who may be at increased risk for passing on genetic derangements to their offspring, and therefore, it may be an important element in the proper counselling and therapy of patients considering ICSI.