



Journal of Andrology, Vol 2, Issue 4 200-204, Copyright © 1981 by [The American Society of Andrology](#)

Sperm Motility and Histomorphometry of the Testis of the Genetically Obese Zucker Rat

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The reproductive system of male obese Zucker rats was studied to determine whether there are abnormalities in testis composition, organ weights, or sperm motility, which might contribute to their severely reduced reproductive capacity. The left testes of obese and lean rats were evaluated histomorphometrically according to Chalkley's method (1943). Relative to weight, the percentage of seminiferous tubules, interstitial space, and Leydig cells of fat rats did not differ significantly from those of their lean littermates. The weights of the testes and accessory glands were not significantly different in fat versus lean groups. Sperm recovered from the testes and head and tail of the epididymides showed no differences between fat and lean rats in the percentage classified as immobile, oscillatory, circularly moving, or forwardly progressing. These findings suggest that the testes of obese Zucker rats have a normal composition of seminiferous tubules and interstitial cells and a normal pattern of maturation of motility as sperm pass through the reproductive tract. The severely reduced reproductive capacity of the obese male may be primarily due to the previously reported abnormal sexual behavior. It is not due to an inability to produce motile spermatozoa.

Key words: Zucker rat, testis, sperm

Submitted on October 20, 1980

Revised on January 26, 1981

Accepted on February 3, 1981

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