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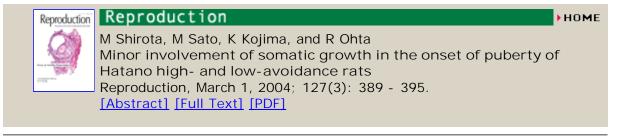
Differences in sperm motion between highand low-shuttlebox avoidance rats (Hatano strains)

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Sperm from the caudal epididymis of 2 inbred strains of Sprague-Dawley (SD) rats, selected on the basis of their high- or lowshuttlebox avoidance responses, were analyzed for motion characteristics by a computer-assisted sperm motion analysis (CASA) system. Sperm motion in high-avoidance animals (HAA) was characterized by high velocities, high amplitude of lateral head displacement (ALH),

and low beat cross frequency (BCF). Conversely, sperm from low-avoidance animals (LAA) displayed low velocities, low ALH, and high BCF. These characteristics in sperm motion were not changed by washing. Furthermore, after treatment with alpha-chlorohydrin (aCH) as a male antifertility agent affecting rat epididymal sperm motion, sperm velocities in HAA rats were significantly reduced to levels similar to those in untreated LAA rats. However, ALH and BCF in HAA rats treated with aCH were different from those in untreated LAA rats. Sperm adenosine triphosphate (ATP) content was higher in HAA than in LAA rats, correlating with values of their sperm velocities. These data suggest there are apparent strain differences in sperm motion between HAA and LAA rats and that these differences are dependent on factors, including sperm energy production.

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