

HOW THE ELEPHANT GOT ITS EPIDIDYMIS

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An idea has been promoted for more than 30 years, that the elephant does not have an epididymis (1,2), that each derivative of the mesonephric (Wolffian) ducts only develops into a ductus deferens. Whilst the location of some of the duct provides some support for this idea, it is considered that the interpretation is misleading in implying that the testes only have ejaculatory ducts that don't function like the epididymides of other mammals. Modern interpretation indicates that all mammals have epididymides, but some species exhibit adaptations of the epididymides that are determined by the structure and general physiology of the species, and the reproductive strategy of the males to achieve paternity. The modern interpretation of epididymal evolution is based on comparative cytological studies of duct differentiation, the functions of the ducts in regulating their milieu and effecting post-testicular sperm development and storage, and the biological significance of the epididymis in natural selection. It has been shown that most of the more than 50 m length of the elephant's ductuli epididymides do lie on or close to the testis. However, more importantly, it has been shown that mature elephants have epididymides that are structurally differentiated into an initial segment (a feature that is unique to the mammalian epididymis) and 'middle' segments where sperm mature, and a terminal segment that is adapted for sperm storage both in structure and in the regulation of the luminal milieu. Each ductus epididymidis is connected to the urethra by a short ductus deferens.

(1) Short, R.V., Mann, T, and Hay, M. (1967) *J. Reprod. Fertil.* **13**, 517–535. (2) Short, R.V. (2003) *Reprod. Fertil. Devel.* **15** (Supplement), 76.

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