

MALES PROVIDE, FEMALES DECIDE

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Mechanisms of internal female cryptic choice, a central phenomenon in the theory of Sexual Selection have been a mystery. Female cryptic choice occurs when a female stores sperm from mating with different males and is able to “choose” the sperm from favored males from among the stored sperm to fertilize her eggs. This feat is still an unsolved puzzle!

Our search for anatomical substrates of cryptic female choice in *Scathophaga stercoraria* (dung fly), led us to the discovery of a new anatomical structure. This structure has the form and is well positioned anatomically to control sperm transport from the storage organs during fertilization.

We propose two possible mechanisms of internal female cryptic choice in the dung fly. The main challenge to conceptualizing putative mechanisms is the enigma surrounding biophysical phenomena in the micron to low sub-millimeter range (e.g. dynamics of particulate fluid movement through elastic organs).