

Postcopulatory sexual selection has two basic components, sperm competition and cryptic female choice. In this thesis I summarize available data of the influence of postcopulatory sexual selection on sperm morphology and phenotype, focusing on both vertebrates and selected invertebrate taxa. In the first part of my thesis, I provide an overview of sperm phenotype adaptations that are influenced by the sperm competition and may closely determine male fertilization success. These are the length of sperm, sperm swimming speed and motility, longevity of sperm and the amount of ejaculate produced. Sperm phenotypes that evolve under strong postcopulatory selection may also involve morphological adaptations allowing sperm to mutually cooperate in the female reproductive tract. The cryptic female choice, in which female selectively use sperm after the sperm enters her reproductive tract, and the coevolution of sperm morphology and female reproductive tract is presented in the second part of this thesis.