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Variation in Reproductive Tract Morphology of Female Common Bottlenose Dolphins (*Tursiops truncatus*)

Cetaceans exhibit unusual protrusions of the vaginal wall into the lumen. Inconsistent terminology and a lack of anatomical landmarks in the literature have hindered explorations of diversity and evaluations of functions of vaginal folds. Our objectives were to: 1) develop a standardized measurement protocol, 2) assess variation in morphometrics within the common bottlenose dolphin (*Tursiops truncatus*), and 3) determine if vaginal muscle contractions are under somatic (voluntary) control. A sampling protocol was developed to collect up to 15 measurements from the reproductive tracts of deceased females using calipers. Measurements were analyzed across age class, reproductive states, and geographic areas from the southeastern USA (n=18 specimens). Presence of striated muscle and variation in density of muscle banding were assessed using 90 histological samples (n=5 specimens) stained with a modified Masson's trichrome stain. Dolphins had one large vaginal fold. Few differences were detected in vaginal measurements between sexually mature and immature or between pregnant and non-pregnant mature females. Vaginal morphology attributes appear to be conserved within this species. The muscular layer of all vaginal tissue consisted of smooth muscle, consistent with other mammals. No differences were found in the density of smooth muscle banding between vaginal regions or age classes. Vaginal contractions appear to be under autonomic control. Our systematic protocol lays the foundation for evaluating evolutionary functions of vaginal folds (e.g. sexual selection, natural selection, phylogeny).