Movement and communicative implications of ventral carrying in animals with altricial infancy

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In altricial species, young are born underdeveloped and mature thereafter with help from parents. Many taxa of (smaller) animals birth infants that are born helpless: marsupials, rodents, passerine birds, and most primates shelter their young through prolonged periods of immaturity. Infant carrying constitutes an unusual form of such maturation-enabling care among lower-parity terrestrial animals. In primates, ventral infant carrying, in particular, is associated with complex vocalizations and binocular vision. I hypothesized that higher risks of gravitationally accelerated impacts by (non-parachuting but) airborne euarchonta eventually led to the emergence of cognition necessary for integration of redundant sensation of both complex visual and auditory patterns. A comparison of species in our grandorder corroborates this evolutionary scenario. Unlike leaping primates who carry their infants (e.g. anthropoids), nesting non-leapers (e.g. Scandentia) and winged carriers (e.g. Dermoptera) both have minimally repetitive calls but lower orbital convergence. This suggests that both landing velocity as well as frequency may independently drive both vocal and visual evolution.