Protection from predation permitted forfeit of the peripheral field and favored forward facing focus

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Primates are unusual among animals in that they have orbits that are dedicated in a forward-facing orientation. I hypothesized that various, largely family originating, forms of security from predation relaxed constraints on peripherally vigilant vision. This idea is explored as a part of the rear/oblique attack risk reduction module. I used data on orbital convergence [OC] from upwards of 88 primates and compared these values against various forms of protection including arboreality, body mass, group size, infant care, and canopy gap spanning locomotion. Body mass and infant care (e.g. carrying, weaning time) were strongly associated with higher OC across all primates, whereas group size may have enabled higher OC in smaller anthropoids and arboreality may have enabled higher OC among smaller primates. Swinging (esp. brachiating) and bridging (in Lorisidae) primates also showed higher OC values, where as leaping only associated with higher OC among larger primates. Higher values for OC among diurnal, color sensing, and angiosperm feeding primates also suggest that dietary factors may have played a role in the evolution of further OC in anthropoids. These findings are consistent with the idea that reduced predation from behind, above, and the side could have allowed primates to prioritize the target of their stereoscopic vision on items in their foreground field of view.