

The evolution of brain size and organization in vertebrates. A program for research

Aboitiz,

In vertebrates, brain size variability relates to two main parameters: body size and ecological factors (in particular diet and foraging strategy). It has been considered by many authors that evolutionary brain growth is a unitary phenomenon whose main effect is to increase processing capacity.

Alternatively, in this paper it is considered that brain growth is significantly associated with higher processing capacity only when it occurs associated with ecological circumstances (selection of behavioral or perceptual skills). This process is referred to as 'active' growth. When the brain scales on body size, there is little change in processing capacity, and this will be referred to as 'passive' growth. I propose that these two modes of phylogenetic brain growth relate to different developmental/evolutionary processes and are distinguishable at the level of adult and developing structure. Shortly, growth due to selection of behavioral capacities is associated with more differentiated brain