Abstract

The evolution of the cerebellum in vertebrates (Vertebrata) represents a fascinating area of research that focuses on understanding how the cerebellum evolved, how its shape, size and function changed in different groups of vertebrates in response to their environment, behavioral needs and adaptations. The cerebellum is an important structure of the central nervous system that, contributes significantly to sensorimotor integration, which is necessary for coordinated and precise movements, motor learning and correction of motor errors. In addition to its known role in motor skills, a growing body of evidence indicates its importance in higher cognitive functions such as working memory, emotion and language. Although the cerebellum shows enormous diversity in morphology and function across vertebrate lineages, the basic principles of its organization and information processing are essentially conservative. With the exception of jawless vertebrates, the cerebellar cortex exhibits a three-layered arrangement that is, with a few exceptions, highly stereotyped in all groups of vertebrates. In birds and mammals, the cerebellar cortex is highly gyrified (foliated). In other vertebrates, such as amphibians or reptiles, the cerebellum remains small and simply structured. The aim of this bachelor's thesis is to summarize current knowledge about the structure, function and connections in the cerebellum across vertebrates.

Keywords: Evolution, function, connectivity, cerebellum, vertebrates