# Vertebra Encyclopedia Article

## Vertebra

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# Vertebra

A vertebra (plural, vertebrae) is one of a series of specialized bones that make up the spinal column (or backbone) of animals in the phylum Vertebrata. Like other bones, vertebrae are formed initially of cartilage during early stages of embryonic development, and then ossify into true bone (that is, the tough, elastic cartilage is converted into a rigid material composed mostly of calcium phosphate). The spinal column is the main axial (or length-wise) girder (or supporting structure) of the vertebrate body.

A typical vertebra contains a massive, roughly spool-shaped (or cylindrical), central structure, known as the centrum. It also has a structure on the top surface, known as the neural arch, that forms a tube through which the spinal cord passes. Many vertebra also have structures of various length that stick out from the sides, known as processes, and from the top, known as a neural spine, to which muscles and ribs can attach. The numerous vertebrae of the spinal column articulate (or interlock) together to give the entire structure length-wise rigidity and support, yet lateral flexibility. The vertebrae are separated and cushioned from each other by soft, flexible structures known as discs.

The sizes and shapes of vertebrae vary along the spinal column of any particular animal. The ones higher in the back tend to have larger processes than those further below. Vertebral size, shape, and number also vary greatly among species. Tiny fish have the smallest vertebrae, while whales have the most massive ones. Snakes and salamanders have the largest numbers (up to several hundred) of vertebra. In certain groups of organisms some regions of the spinal column have masses of fused vertebrae that form specialized structures, such as the urostyle of frogs and the synsacrum of birds.