Somites Encyclopedia Article

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Somites are aggregations of cells that lie in pairs along the transient (temporary) **notochord** in developing human embryos. Somites are also found in the midline paraxial (near the axis) mesodermal **tissue** of all vertebrates in early embryonic stages. Somites are formed from mesodermal tissue that thickens and then divides transversely into blocks. Somites ultimately develop into **vertebra**, ribs, muscles, and dermal structures.

Segmentation of the **mesoderm**, starting about the beginning of the fourth week of embryonic development, proceeds in a cranial-caudal direction (from head to tail) as the embryo develops. Ultimately, there are four occipital somites (some researchers assert that there are as many as nine somatic divisions of the same tissue) that contribute to the development of the **skull**. As development proceeds, eight cervical, twelve 12 thoracic, 5 lumbar, 5 sacral and approximately 8 coccygeal somites come to lie along the notochord and developing **spinal cord**.

Somites are comprised of densely packed epitheloid cells. Individual somites are further divided into a ventromedial sclerotome. Cells from this region ultimately form the vertebrae and ribs of the axial skeleton. The dorsolateral portion of the somite cells comprises the dermatome (also called the dermomyotome) that further divides mytotomes and dermatomes.

Cells from the myotomes that ultimately produce muscle tissue striated **skeletal muscle** tissue. Cells from the dermatome undergo a number of additional changes during **cell differentiation**, losing their epitheloid characteristics and joining with other cells to form the **dermis**.