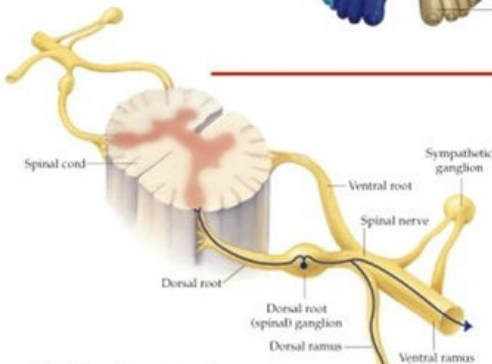
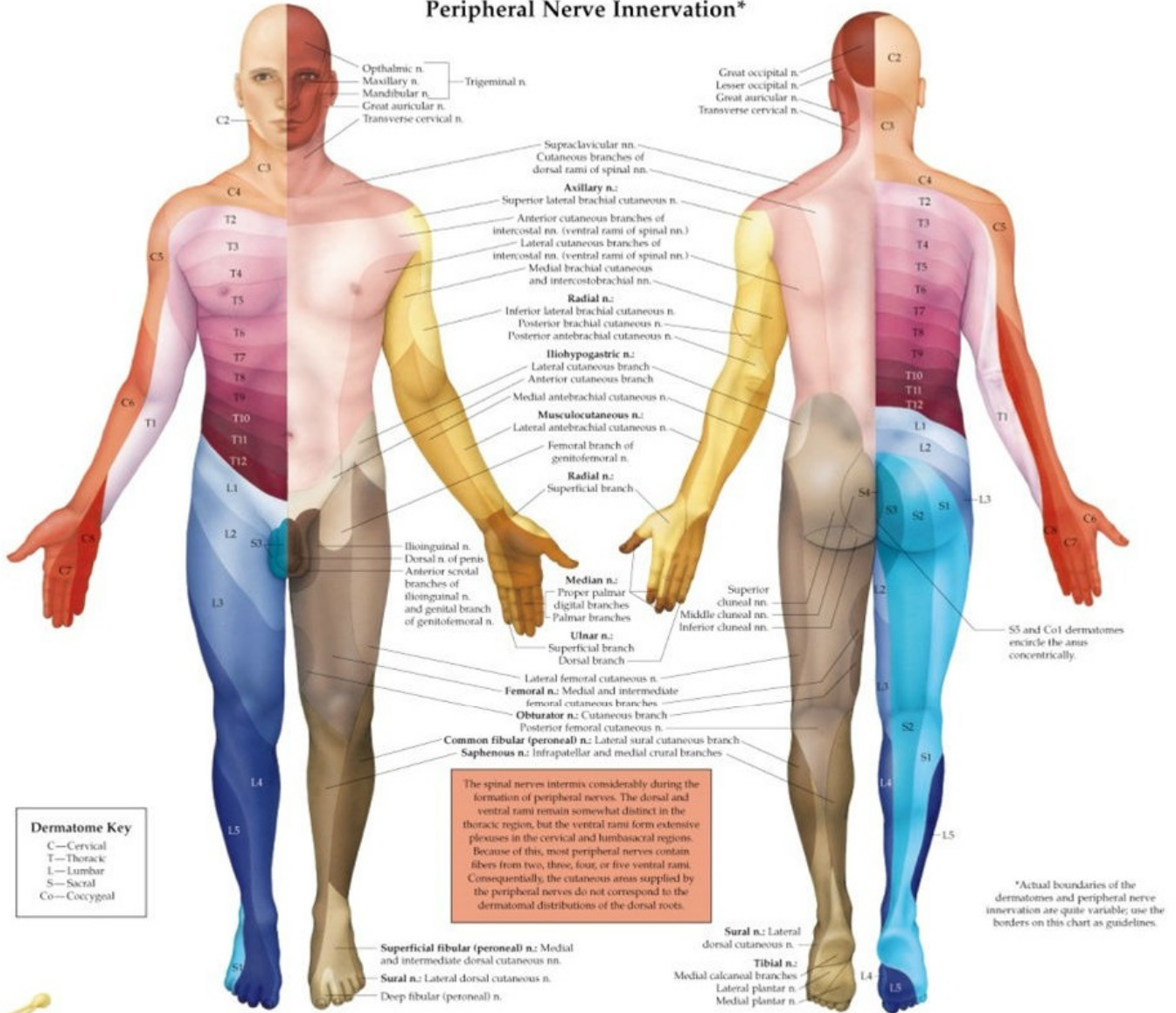


DERMATOMES

Cutaneous Areas of Peripheral Nerve Innervation*



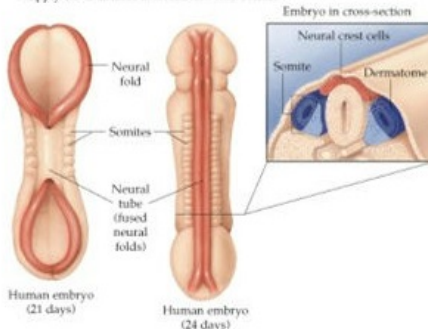
What is a Dermatome?

A **dermatome** is the cutaneous area (area of skin) supplied by nerve fibers from a single dorsal root and its ganglion. Dorsal roots contain afferent fibers, which carry sensory information from a source, such as the skin, to the spinal cord and brain. Dorsal roots join the ventral roots to form spinal nerves at every vertebral level of the spinal cord. From this point, nerve fibers from the dorsal roots disperse ventrally and dorsally to supply an entire segment of skin. In the torso, these segments, the dermatomes, form consecutive bands.

The dermatome map is an important diagnostic tool, especially concerning disorders of the peripheral nervous system. Any condition leading to symptoms, such as numbness, affecting specific dermatomes can be linked to the dorsal roots. Nerve fibers from each dorsal root spread out significantly, causing the dermatomes to overlap each other. Because most dermatomes are supplied by fibers of three or four dorsal roots, three consecutive nerve roots have to be damaged before the sensation of an entire dermatome is affected.

Development of Dermatomes

As the neural tube starts to form during early stages of human development, the tissue on either side of it starts to divide into bilateral segmented cell masses called somites. The dermatome portion of each somite is responsible for development of the dermis of the skin in each segment of the body. A layer of neural crest cells above the neural tube divides in the midline and is segmented into cell clusters near each somite. Cells from each of these clusters migrate into the somites of the same body segment and form the dorsal root ganglia. These form the sensory nerve fibers which supply the structures derived from each somite.



Development in the Extremities



The dermatomes on the extremities do not form patterns of consecutive bands as on the torso. Consideration of limb development in the human embryo provides a simple explanation for this. As the limb buds begin to form, somites in the area migrate out and arrange themselves parallel to the long axis of the potential limb. As the limb forms, the consecutive somites position themselves around the axial line.