

Anatomy of The Spine

Blood Supply of the Spine

Blood Supply of the Spine

The spinal cord and the spinal column have an intricate blood (vascular) supply. Cells of the spine, spinal cord and spinal nerves cannot repair, reproduce, or remodel without nutrient replenishment through its blood supply. The blood supply includes arteries, small arteries arterioles, capillaries, small veins (venules) and veins.

The spinal cord is supplied by one unpaired anterior and two paired posterior lateral arteries that travel the entire length of the spinal cord. The unpaired anterior artery supplies approximately 2/3 of the anterior and central portion of the spinal cord. Two posterior spinal arterial supply the posterior 1/3 of the cord. The outer layer of the spinal cord receives a blood supply through the vasa corona, which refers to small circumferential vessels. There are countless penetrating small arterial vessels throughout the length of the spinal cord. There are veins within the spinal cord and outside the spinal cord.

The blood supply to the spinal cord is exposed to systemic influences that include cardiac insufficiency, infection, metabolic abnormalities, and hematogenous seeding of malignancy. Pathology or disease occurring outside the spine can directly or indirectly influence spinal cord health through its blood supply. For example, aortic or vertebral arterial disease can result in insufficient spinal cord blood supply. The spinal blood vessels are susceptible to physical compression. Some individuals may have blood-clotting disorders, which also can alter blood supply in the spinal cord.