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| **Name:** |
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| **Group:** |
| 7A-3 |
| **Basic Science Question:** |
| What is the anatomy of a blood vessel? |
| **Report:** |
| Blood vessels include arteries, arterioles, capillaries, venules, and veins. All of these vessels except capillaries are composed of three distinct tissue layers. The tunica adventitia is the outermost layer and composed of connective tissue. It provides support and shape to the blood vessel. The tunia media is the middle layer and is composed of smooth muscle and elastic and connective tissues. The smooth muscle contracts and relaxes to change the diameter of the blood vessel and thus resistance and blood pressure. Elastic fibers enable blood vessels to stretch and recoil. The tunia media is thickest in the arteries since it has more smooth muscle and elastic fibers in order to maintain the high blood pressure within them. The tunica intima is the innermost layer of blood vessels and is a single layer of endothelial cells supported by underlying connective tissue. This simple squamous endothelial lining reduces friction between the blood vessel walls and the blood passing through them (Tucker).  Epinephrine is a hormone and medication that affects many parts of the body including blood vessels. Epinephrine is produced in the adrenal medulla and acts to stimulate the sympathetic nervous system. It has many effects on the body’s stress response including increased vascular smooth muscle contraction, pupillary dilator muscle contraction, and intestinal sphincter muscle contraction. As a vasoconstrictor, epinephrine binds to alpha-adrenergic receptors on vascular smooth muscle cells to trigger a signal transduction that ultimately causes smooth muscle in of the walls of blood vessels to contract. This vasocontriction increases vascular resistance and blood pressure (Dalal). |
| **References:** |
| Dalal, Rajeev. “Epinephrine.” *StatPearls*, U.S. National Library of Medicine, 10 May 2020, www.ncbi.nlm.nih.gov/books/NBK482160/.  Tucker, William D, et al. “Anatomy, Blood Vessels.” *StatPearls*, U.S. National Library of Medicine, 10 Aug. 2020, www.ncbi.nlm.nih.gov/books/NBK470401/. |