

BOOK 4

HEALTH FITNESS AND SPORT

SECTION 3

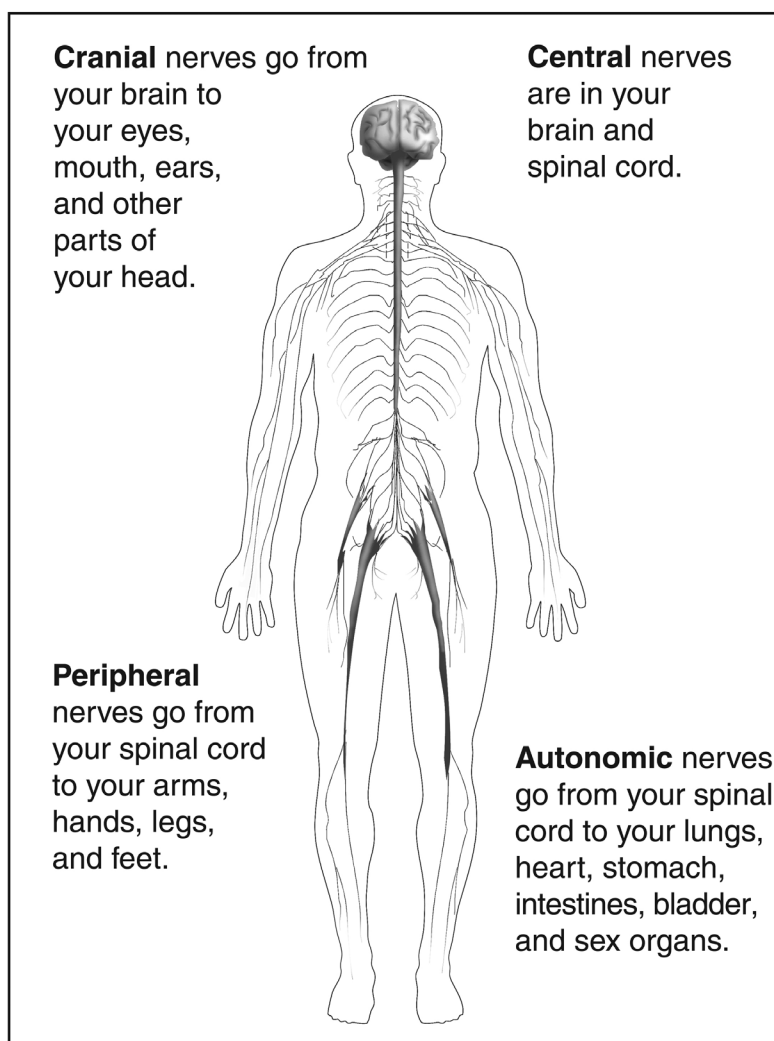
EXERCISE AND FITNESS IN HUMANS



THE STRUCTURE OF THE NERVOUS SYSTEM

The human nervous system consists of:

- the central nervous system (CNS) – the brain and spinal cord
- the peripheral nervous system – nerve cells that carry information to and from the CNS.



Nervous system

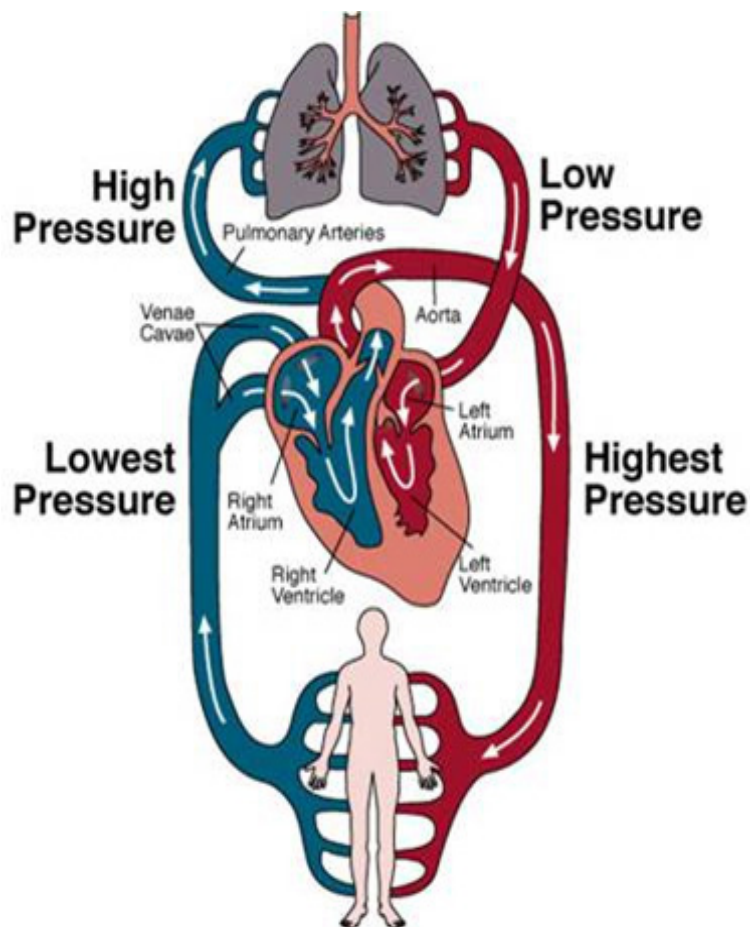
NIDDK Image Library, <http://bit.ly/2eAW1tW>

THE CARDIOVASCULAR SYSTEM

The cardiovascular system is the system which moves blood containing essential nutrients, oxygen, carbon dioxide and other waste products around the body. The cardiovascular system is made up of the following parts:

- The heart
- Arteries
- Veins
- Capillaries.

The cardiovascular system is a double pump system. This means that blood enters the heart twice, once from the body, and once again from the lungs.

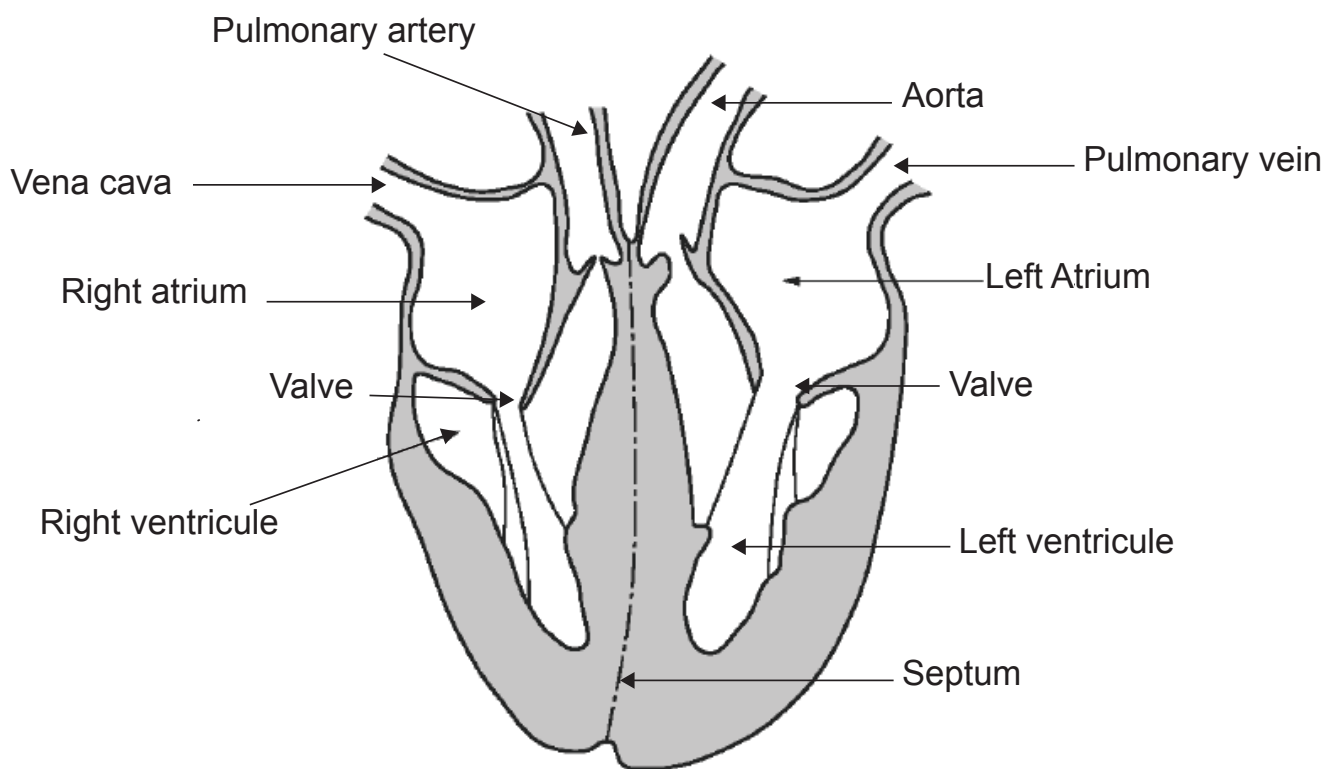


Cardiovascular System

<http://humananatomy.co/systemic-and-pulmonary-circulation/>

THE HEART

The heart is a muscle that pumps throughout your life. It is the only muscle in the body which never gets tired. The heart is made up of four chambers. The heart is always viewed as if it is on your own body. So the left of the diagram as you see it on the page is actually the right side.



Heart

The right side of the heart receives deoxygenated blood from the body. It first collects in the top right chamber called the “RIGHT ATRIUM”. The blood then moves down to the “RIGHT VENTRICLE” which pumps the blood to the lungs. In the lungs the deoxygenated blood becomes oxygenated. From the lungs, blood is collected in the “LEFT ATRIUM”. This blood then moves to the “LEFT VENTRICLE” and is then pumped around the body.

Blood moving away from the heart is transported in arteries which feed into much smaller blood vessels called capillaries. Blood moving back to the heart moves from capillaries into veins and then back to the heart.

BLOOD

Blood is not as simple as you might first think. Blood is actually made up of four major parts:

- Red blood cells
- White blood Cells
- Platelets
- Plasma.

Red blood cells are the cells which transport oxygen around the body. Oxygen is needed to produce energy. A person with lowered red blood cell levels is said to be anaemic. This means that they don't have enough red blood cells to transport oxygen to all of the cells in their body. A symptom of anaemia is low energy levels and feeling tired all of the time.

The red blood cell is shaped a little like a doughnut without the hole (a biconcave disc).



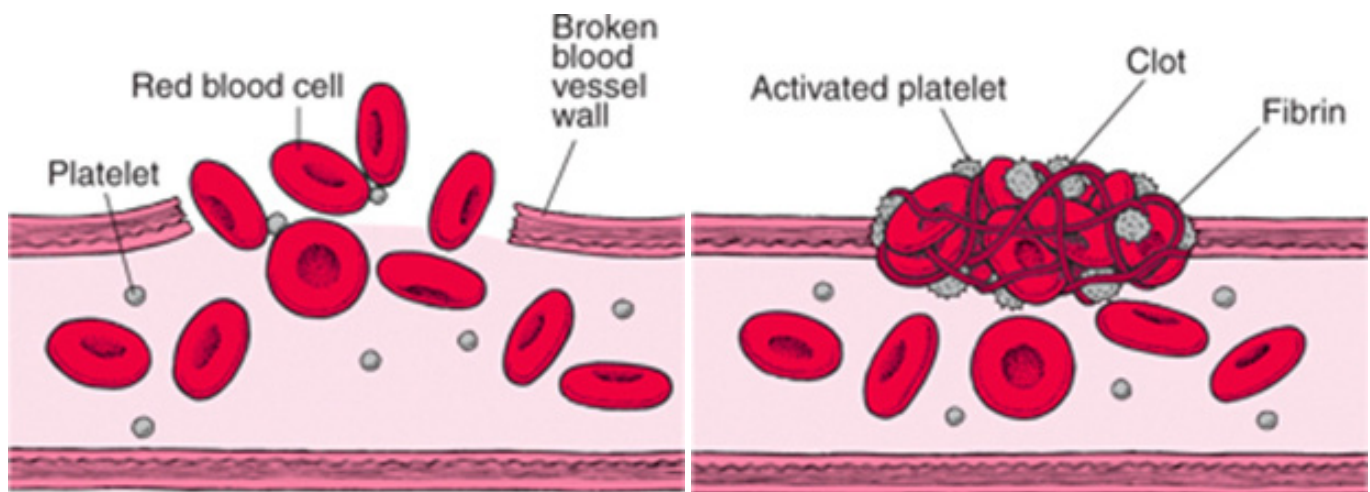
Red blood cells
SEBASTIAN KAULITZKI / Getty Images

WHITE BLOOD CELLS

The white blood cells are responsible for defence. They protect the body and fight infection. Some white blood cells release chemicals called antitoxins and antibodies, while other white blood cells engulf invading microbes and digest them.

PLATELETS

Platelets are needed for clotting. When you are cut platelets move to the area and clot to form a scab allowing the area to heal and prevent foreign microbes from entering the body.



Clotting

Blood clot formation, <http://bit.ly/2fV33r9>

PLASMA

Plasma is a straw-coloured fluid which carries nutrients, carbon dioxide, waste and heat.



Plasma

Fresh frozen plasma, Wikimedia CC,
<http://bit.ly/2dYDAww>