

Review: Anna Claybourne, *An Interactive Exploration of the Human Body*, Books and Gifts Direct, North Sydney, NSW, 2015

Pages: 48

Good Introduction to the Body

This short book covers the major human body systems in a simple way and with enough detail for the reader to understand its extreme complexity.

Such complexity can only be the workings of an intelligent mind, which we know from the Bible was Jesus Christ:

“All things were made by him; and without him was not any thing made that was made.”

John 1.3, Authorized Version

I) Body Systems (pp. 4-5)

Body systems are the skeletal system, muscular system, nervous system, respiratory system, circulatory system, digestive system, urinary system, and the skin.

The body has 50B cells which combine to make tissues, then organs, culminating in organisms.

There are 200 different types of cells including nerve, muscle, bone, blood, gland, and reproductive.

II) Skeleton (pp. 6-9)

The skeletal system has more than 200 connected bones, the smallest being the *stapes* bone in the ear.

Bones are as strong as cast iron yet light as wood.

Bones have blood vessels running near the surface below which is a spongier layer. At the centre is the jelly-like marrow which produces blood cells: red and white.

There are different joint types:

-Pivot (neck).

-Ball-and-socket (hip).

-Hinge (elbow).

-Saddle (thumb).

-Ellipsoidal (thumb).

-Gliding (ankle).

III) Muscular System (pp. 10-13)

There are 650 muscles in the body and make up half its weight.

There are three involuntary muscle types: skeletal (tendons), smooth (digestive tract), and cardiac.

Voluntary muscles include the *deltoid* (arm-lifting); *pectoralis* (arm-pulling); *bicep* (arm-bending); *latissimus dorsi* (arm-pulling away from the body); *trapezius* (shoulder-lifting); *triceps* (straighten the arm); *quadriceps femoris* (leg-straightening); *gluteus maximus* (thigh-straightening); *extensor digitorum longus* (toe and foot movement).

Muscles are made of fibres called fascicles which bunch-up into connective tissue. One muscle can have 2,000 fibres.

Bone-moving muscles work in pairs, one tensing and the other relaxing (and vice versa).

IV) Nervous System (pp. 14-17)

The thinking area of the brain is at the front (think, learn, plan, and feel).

The sensory area is at the top (receiving messages from the skin, nose, and tongue).

The sight area is at the back.

The hormonal system has seven main glands: the pineal (sleep control); pituitary (growth hormones); thyroid (enzyme production); thymus (disease-fighting in children); adrenal (stress reaction controls); pancreas (insulin production); ovaries (bodily development).

V) Respiratory System (pp. 18-21)

Sticky mucus and hairs inside the nose trap dirt, dust and tiny particles.

Chest bronchi divide thousands of times into narrow tubes called *bronchioles* which can be less than a millimetre. Bronchioles terminate into grape-like sacs called *alveoli* which are smaller than a grain of salt. Each lung had over 300M alveoli.

VI) Inside the Heart (pp. 22-25)

A resting heart beat is seventy beats-per-minute. It pumps 100,000 times each day or 40M times per annum.

It is like a two-storey house with four rooms; the top level is the “atria” and the lower the “atrium”.

The right atrium receives low-oxygen blood and pumps it into the right ventricle which then goes to the pulmonary artery to receive oxygen. Newly-oxygenated blood is sent back from the lungs to the heart to the left ventricle and into the body.

Heart walls are made of strong muscle called myocardium.

The superior vena cava carries oxygen-poor blood from the upper body.

The aorta takes blood to the rest of the body.

The pulmonary artery carries oxygen-poor blood to the lungs.

The inferior vena cava carries oxygen-poor blood from the lower body.

The left ventricle pumps blood into the aorta.

VII) Circulatory System (pp. 26-29)

The body has five litres of blood.

Capillaries have walls one-cell thick.

Most of the body has arteries and veins. Arteries deliver oxygenated-blood while veins transport oxygen-depleted blood.

Plasma is mainly water but also contains sugar, hormones and waste products.

Platelets help clotting.

Jugular veins return oxygen-depleted blood from the brain to the right atrium.

The carotid artery delivers oxygenated blood to the brain.

The aorta is the largest artery.

The femoral vein returns blood from the legs to the right atrium.

The inferior vena cava returns blood from the lower body.

The dorsal digital vein in the foot returns blood from the toes.

The femoral artery supplies blood in the leg.

VIII) Upper Digestive System (pp. 30-34)

The digestive system is nine metres long.

The 'bolus' is swallowed via throat muscles which squeeze the food down. The epiglottis simultaneously closes the trachea entrance so nothing can get into the lungs.

Food takes a few seconds to reach the stomach which it crushes by squeezing and relaxing its muscles. The lower esophageal sphincter at the entrance prevents food going back up.

The pyloric sphincter at the exit keeps food in until it is liquefied.

The stomach wall is lined with millions of gastric pits which produce mucus, acid, and enzymes.

IX) Lower Digestive System (pp. 34-37)

The small intestine is six metres long and continues digestion with juices from the stomach, gallbladder and pancreas. Some particles are also delivered into the liver for further processing.

The villi and folds and ridges which line the organ and facilitate digested particles into the bloodstream.

The liver is the single largest organ in the body and is a chemical processing factory, food storage system, and blood cleaner. It processes food to make glucose, and removes poisons like alcohol from the blood.

The large intestine is 1.5 metres long and 6cm wide. It absorbs water from undigested food creating semi-solid faeces.

X) Skin and Hair (pp. 38-41)

Each hair grows for a few years before falling out. It is subsequently replaced after a three-month rest.

XI) Urinary System (pp. 42-45)

Blood passes through the kidneys 300 times per day and it produces 1.5L of urine.

Urine trickles down from the ureter and fills the bladder until it expands to about seven centimetres.

Kidneys are the blood-cleaning factory/

‘Nephrons’ filter the blood.

Cleaned blood enters the inferior vena cava returning it to the right atrium

XII) Growing Up (pp. 46-48)

A newborn’s skull has soft gaps called fontanelles which allow the head to be compressed during birth. These fuse into sutures.