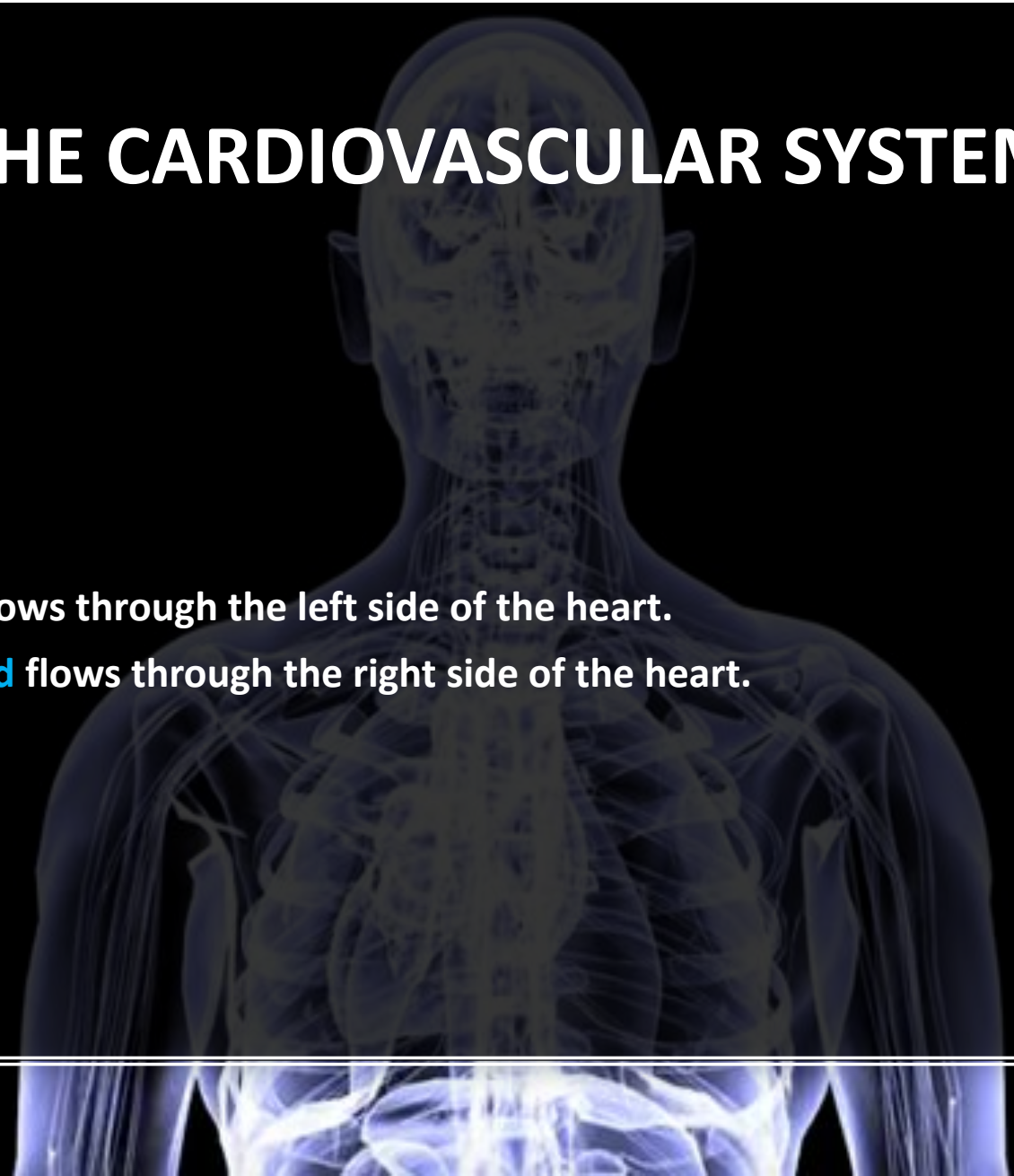
ANATOMY

BY ADAM JESS (2016)

THE CARDIOVASCULAR SYSTEM

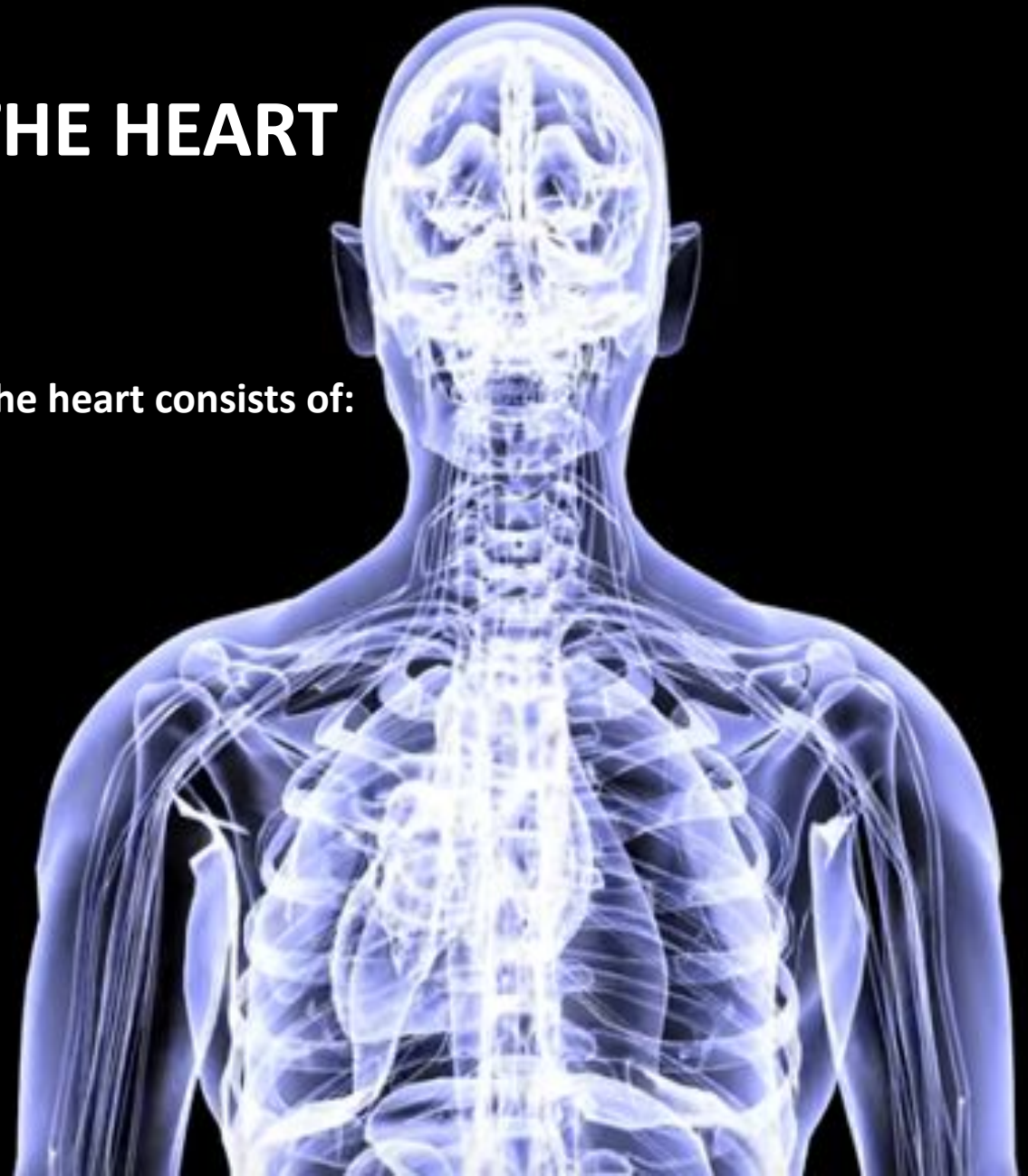


Oxygenated blood flows through the left side of the heart.

De-oxygenated blood flows through the right side of the heart.

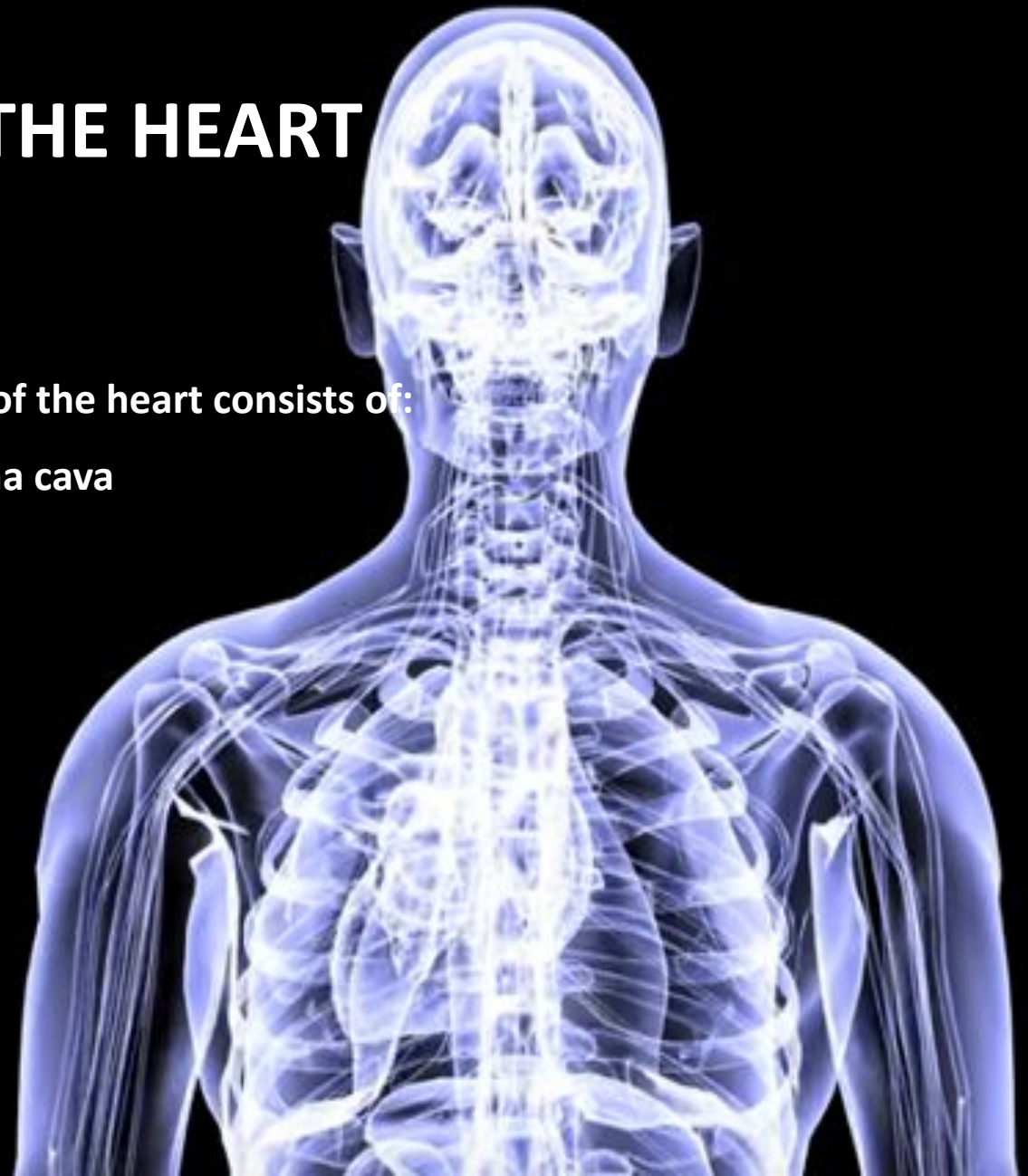
SECTIONS OF THE HEART

- The oxygenated side of the heart consists of:
- Left pulmonary veins
- Left atrium
- Bicuspid (mitral) valve
- Left ventricle
- Aortic valve
- Aorta



SECTIONS OF THE HEART

- The de-oxygenated side of the heart consists of:
- Superior and inferior vena cava
- Right atrium
- Tricuspid valve
- Right ventricle
- Pulmonic valve
- Pulmonary artery



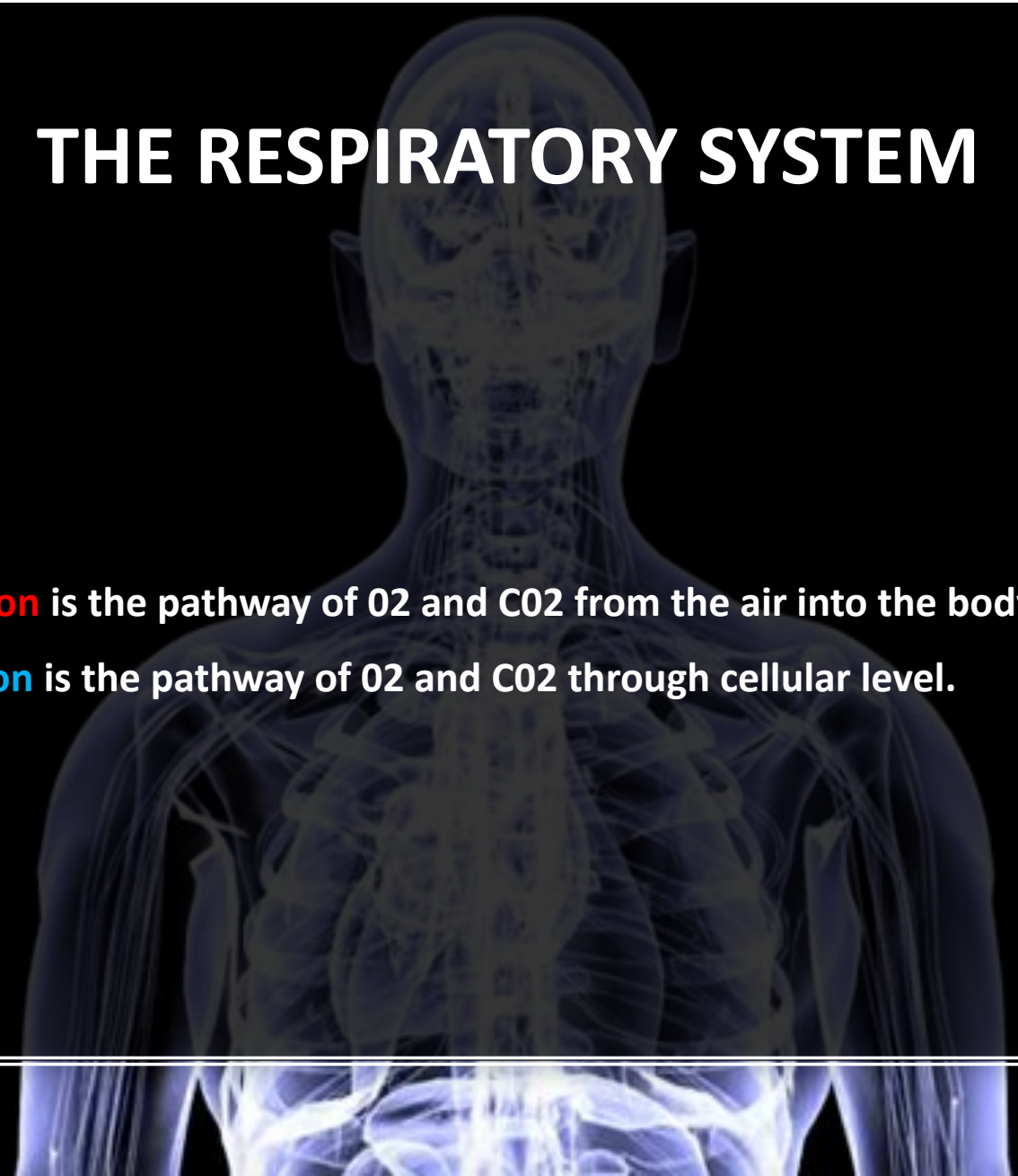
FUNCTIONS

- The **left pulmonary veins:** pump re-oxygenated blood from the lungs into the left atrium
- The **left atrium:** is a collecting chamber before being pushed through the bicuspid(mitral) valve and into the left ventricle
- The **bicuspid(mitral) valve:** is a one way valve preventing back flow to the left atrium
- The **left ventricle:** is a pumping chamber pumping oxygenated blood through the aortic valve and into the aorta
- The **aortic valve:** is a one way valve preventing back flow into the left ventricle
- The **aorta:** is responsible for pumping oxygenated blood to the working muscles and whole body

FUNCTIONS

- The superior vena cava: is responsible for taking de-oxygenated blood from the upper body and transporting it to the right atrium
- The inferior vena cava: is responsible for taking de-oxygenated blood from the lower body and transporting it to the right atrium
- The right atrium: is a collecting chamber for de-oxygenated blood before being transported through the tricuspid valve and into the right ventricle
- The tricuspid valve: is a valve preventing back flow to the right atrium
- The right ventricle: is a pumping chamber responsible for pumping de-oxygenated blood through the pulmonic valve and into the the pulmonary artery
- The pulmonic valve: is a one way valve that prevents back flow to the right ventricle
- The pulmonary artery: is responsible for pumping de-oxygenated blood back to the lungs to get re-oxygenated

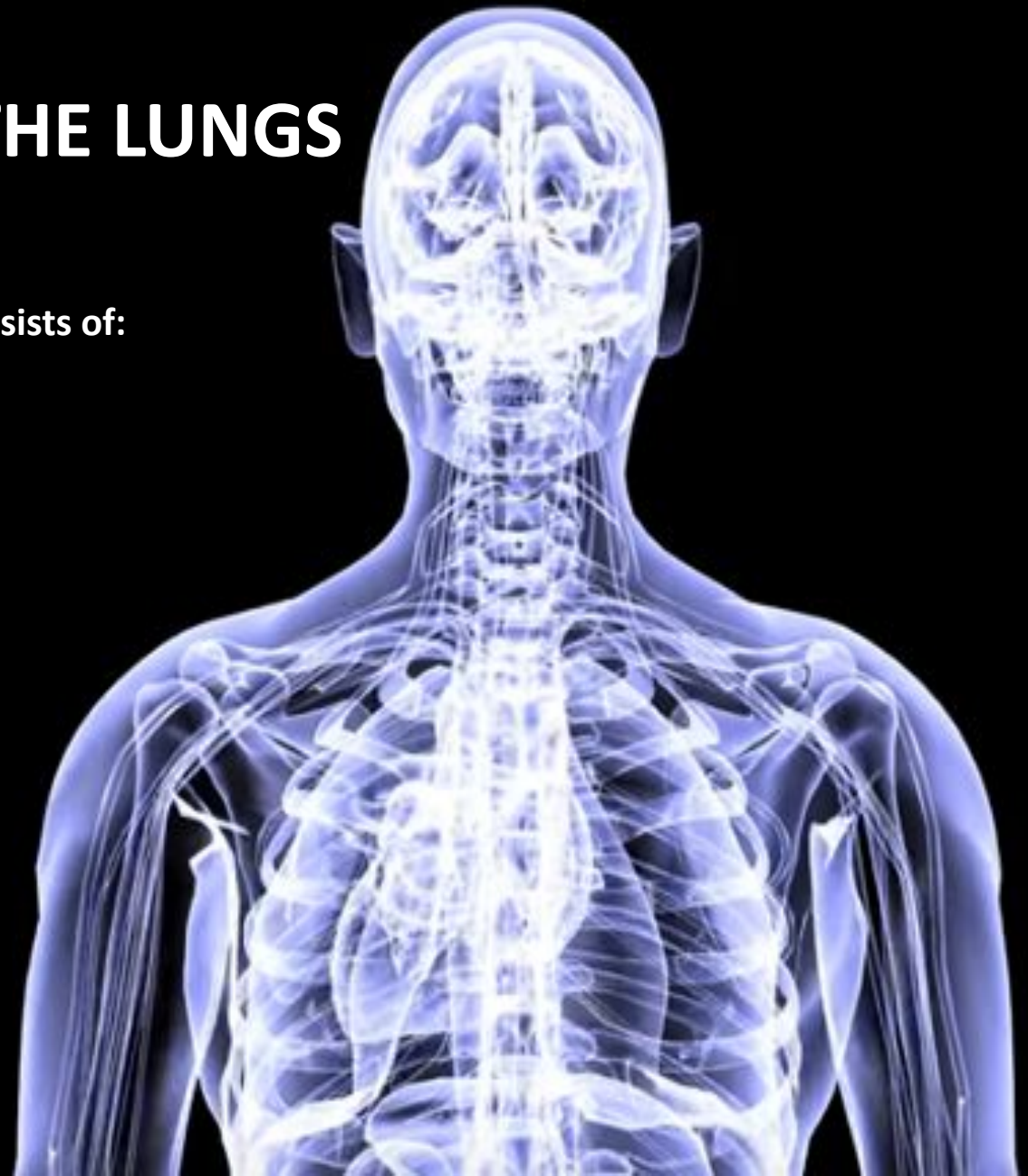
THE RESPIRATORY SYSTEM



- External respiration is the pathway of 02 and C02 from the air into the body.
- Internal respiration is the pathway of 02 and C02 through cellular level.

SECTIONS OF THE LUNGS

- The respiratory system consists of:
- Nasal cavity
- Pharynx
- Larynx
- Epiglottis
- Trachea
- Bronchus
- Bronchiole
- Terminal bronchiole
- Alveoli



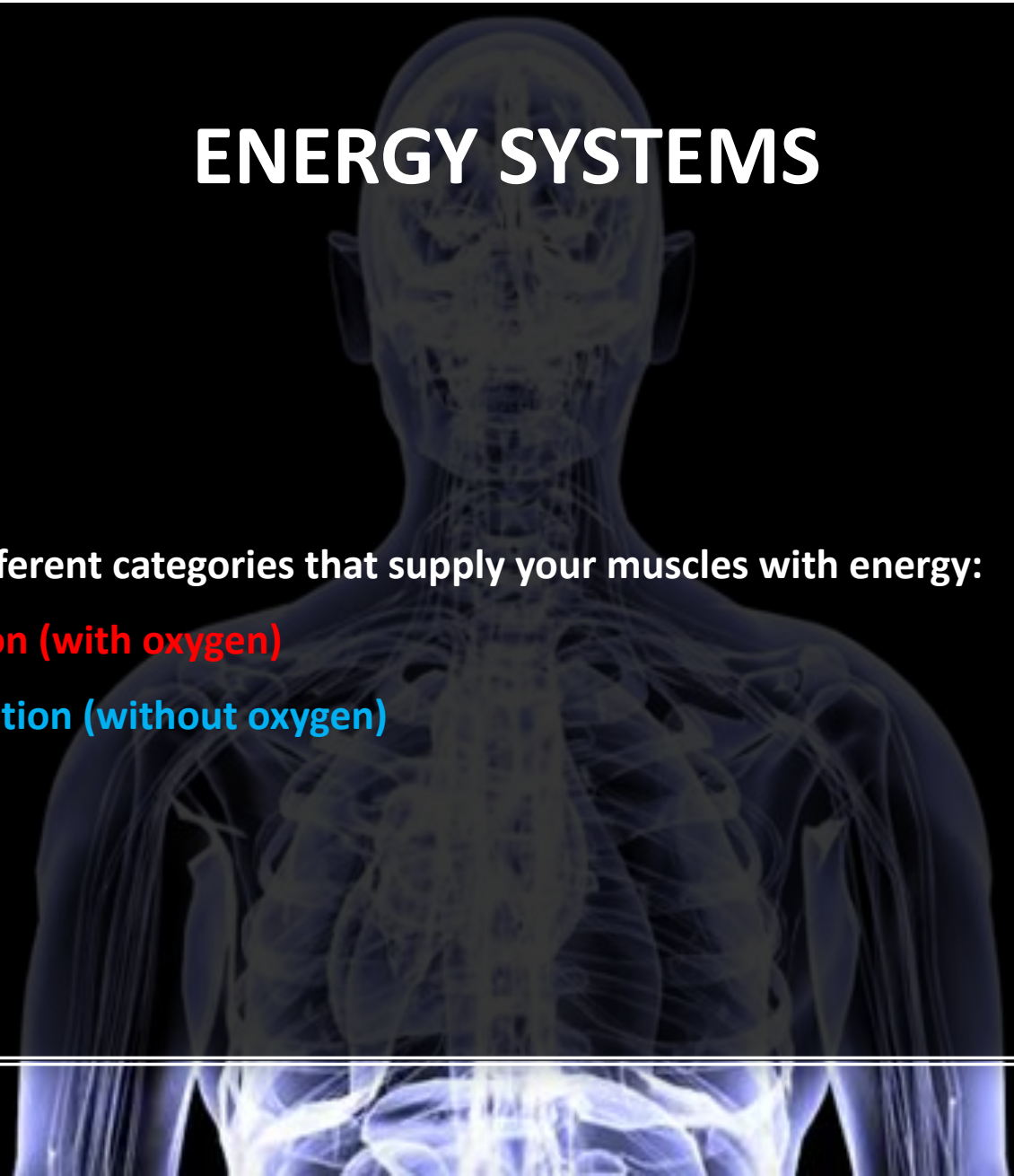
FUNCTIONS

- The Nasal cavity: is responsible for cleaning, warming and moistening the air we breathe before being passed down to the Pharynx.
- The Pharynx: is responsible for filtering, warming and moistening the air before being passed through the Larynx.
- The Larynx: is responsible for manipulating pitch and sound, once the air has passed the Larynx it then continues into the Trachea.
- The Epiglottis: is a flap of connective tissue between the Trachea and Esophagus its responsible for stopping food going down the wrong tube.
- The Trachea: is a long tube covered with c-shaped cartilage rings, it is known as the wind pipe, once inside the Trachea the air then passes through the Bronchus.
- The Bronchus: are smaller tubes for the air to pass through lungs.
- The Alveoli: is a air sac which is responsible for diffusing O2, CO2 and waste products.

ENERGY SYSTEMS

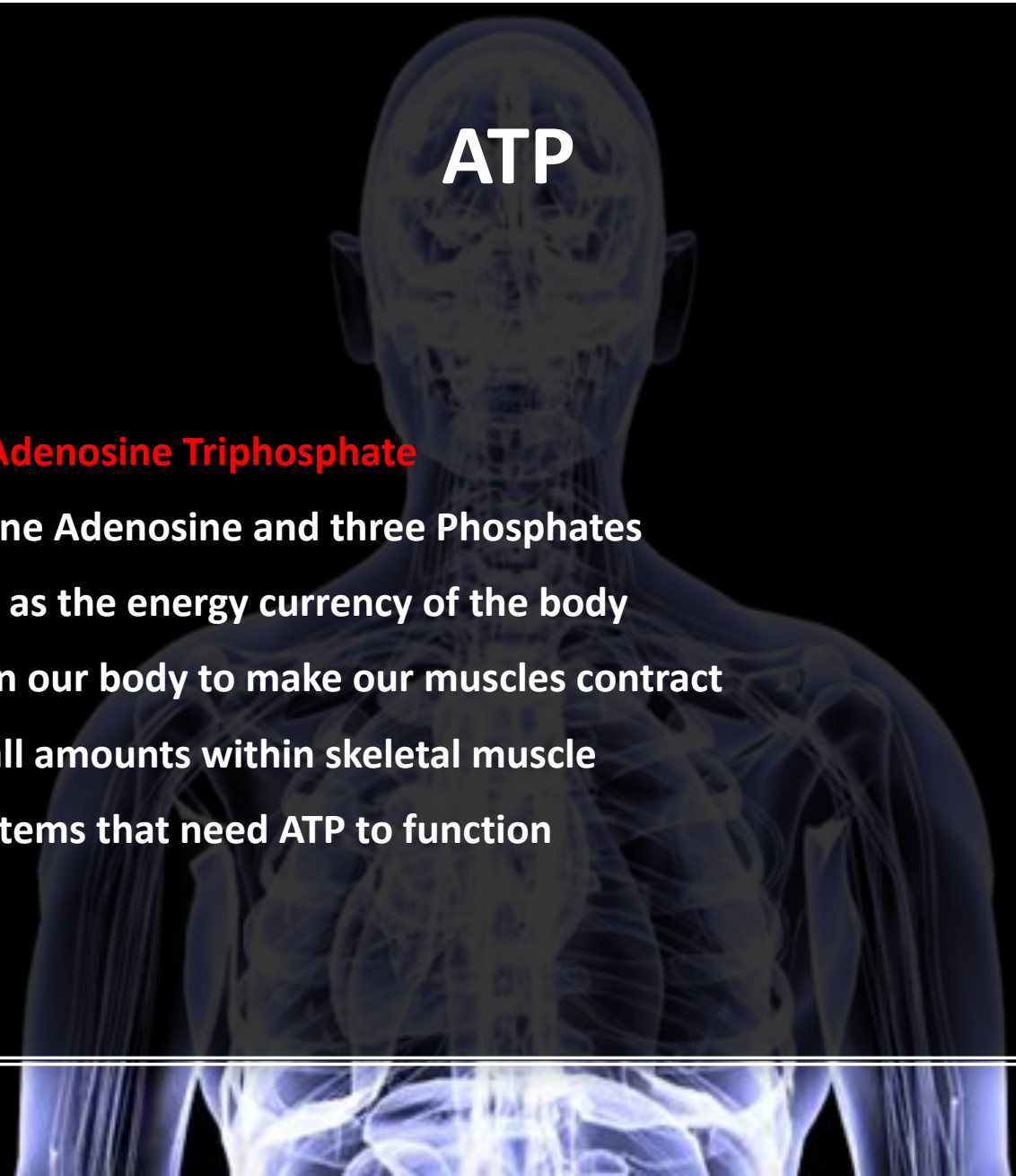
ATP IS THE ENERGY CURRENCY OF THE BODY

ENERGY SYSTEMS



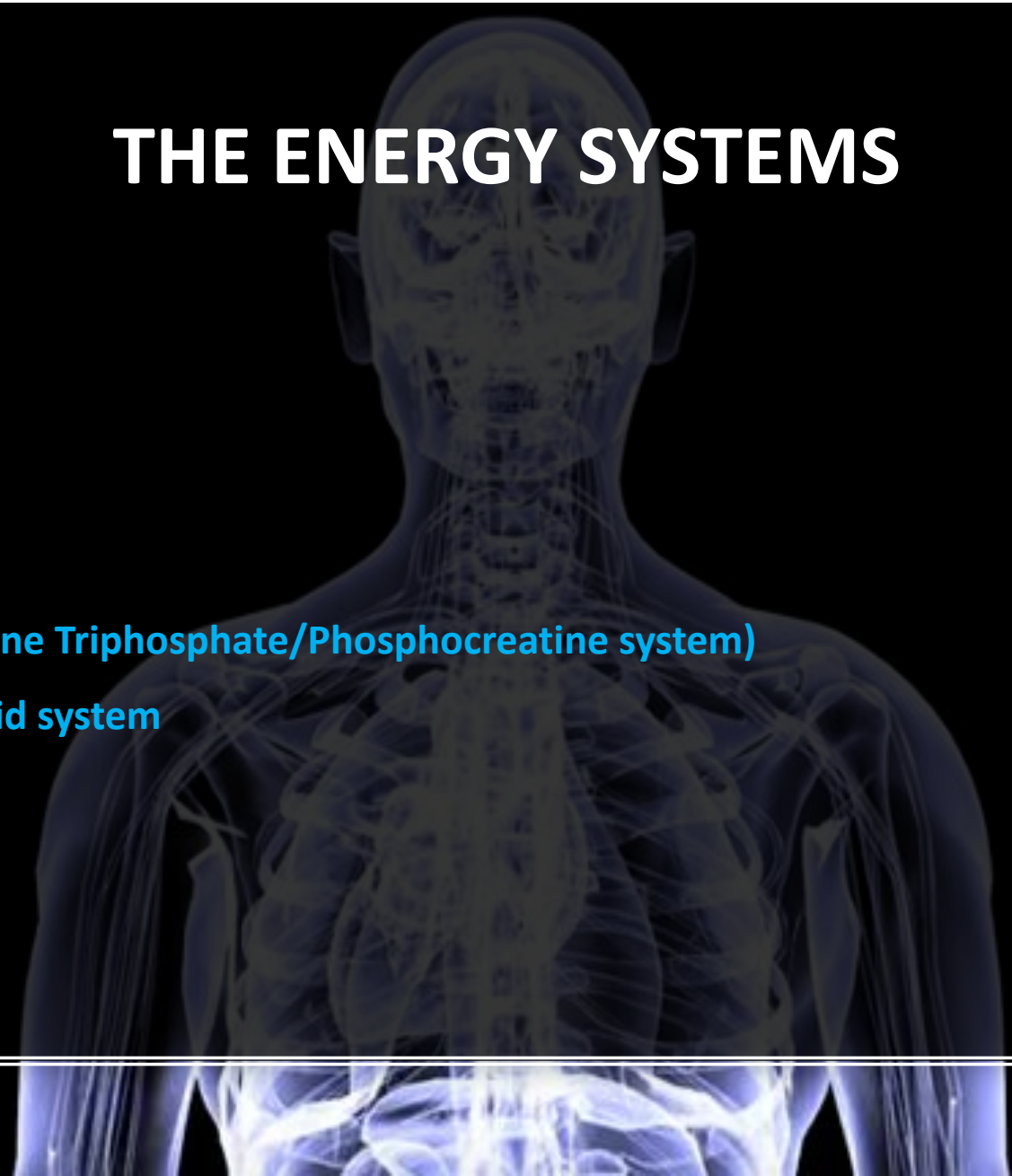
- There are two different categories that supply your muscles with energy:
- Aerobic respiration (with oxygen)
- Anaerobic respiration (without oxygen)

ATP



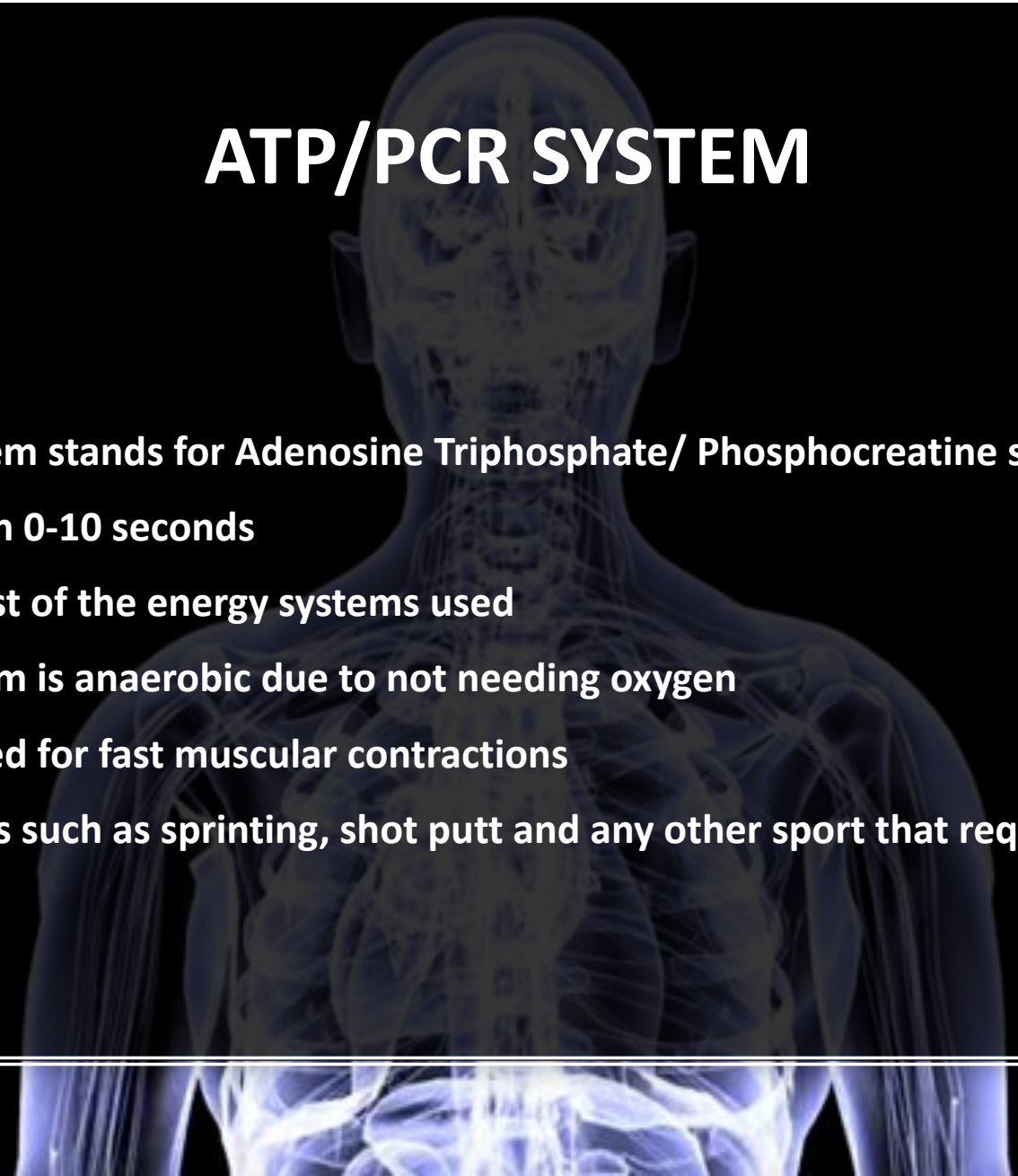
- ATP is known as Adenosine Triphosphate
- It is made up of one Adenosine and three Phosphates
- ATP is considered as the energy currency of the body
- This is used within our body to make our muscles contract
- It is stored in small amounts within skeletal muscle
- There is three systems that need ATP to function

THE ENERGY SYSTEMS



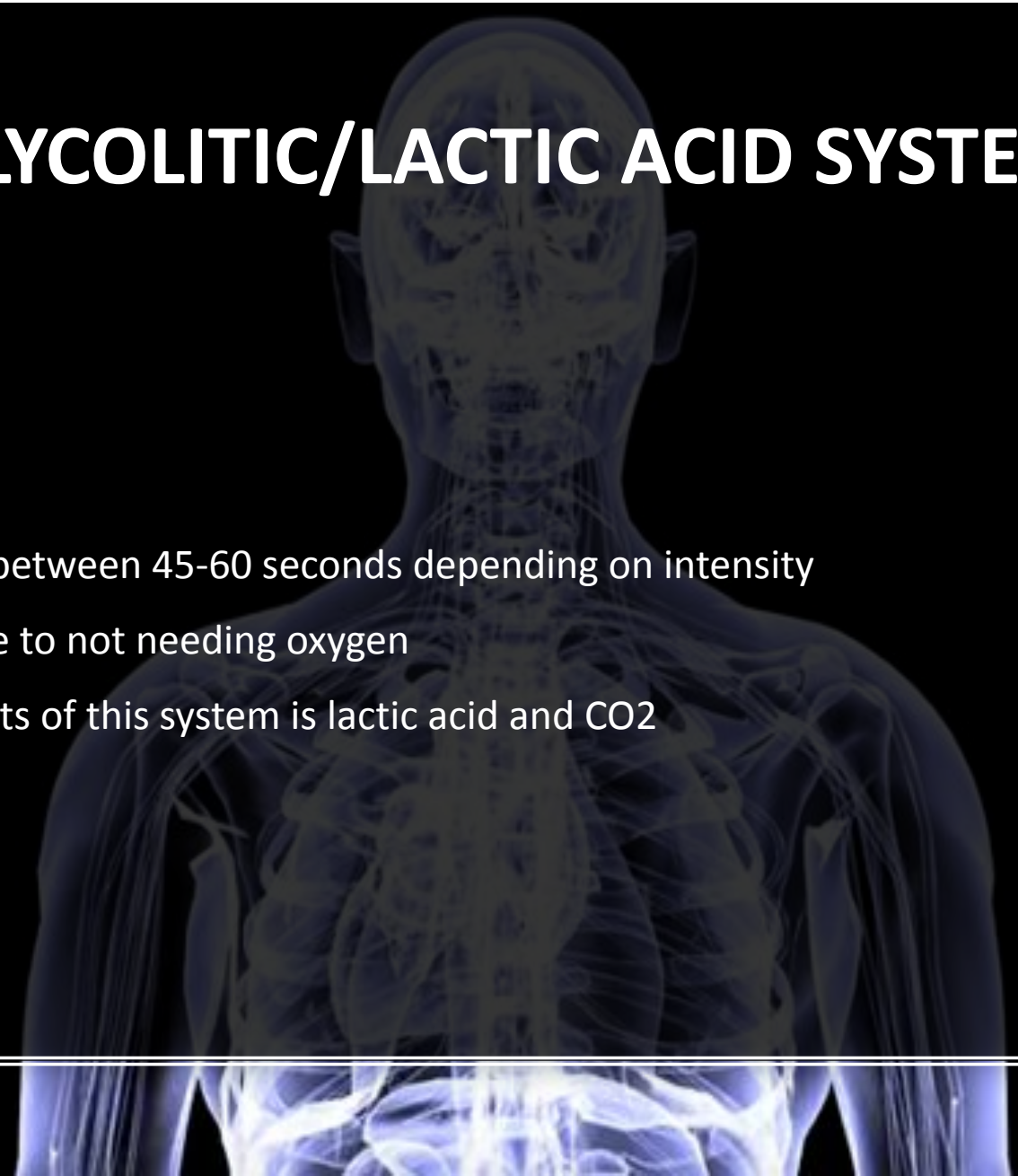
- Oxidative system
- ATP/PCr (Adenosine Triphosphate/Phosphocreatine system)
- Glycolic/Lactic acid system

ATP/PCR SYSTEM



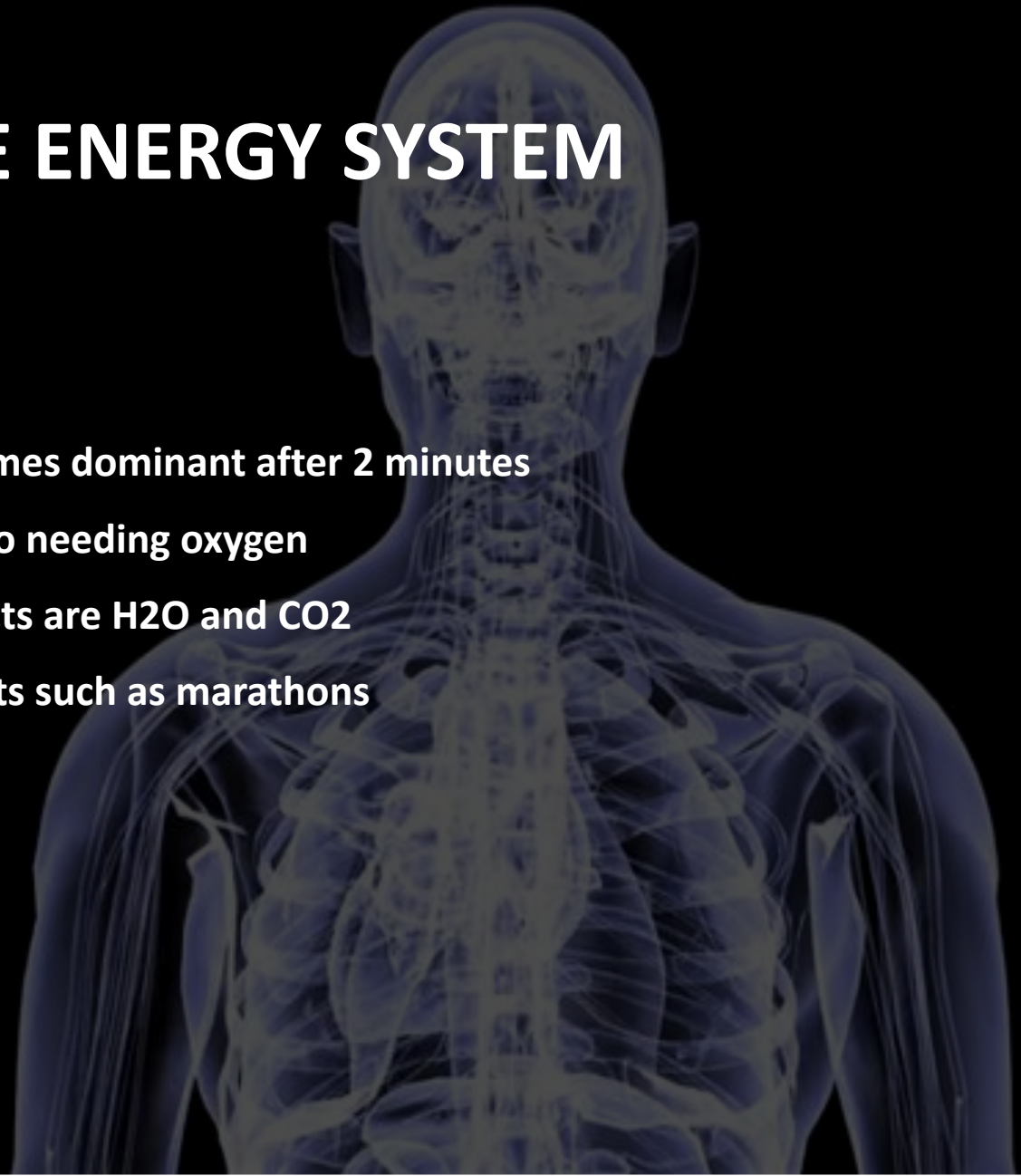
- The ATP/Pcr system stands for Adenosine Triphosphate/ Phosphocreatine system
- ATP lasts between 0-10 seconds
- ATP/PCr is the first of the energy systems used
- This energy system is anaerobic due to not needing oxygen
- This system is used for fast muscular contractions
- It is used in sports such as sprinting, shot putt and any other sport that requires short bursts

GLYCOLITIC/LACTIC ACID SYSTEM



- This system lasts between 45-60 seconds depending on intensity
- It is anaerobic due to not needing oxygen
- The waste products of this system is lactic acid and CO2

OXIDATIVE ENERGY SYSTEM

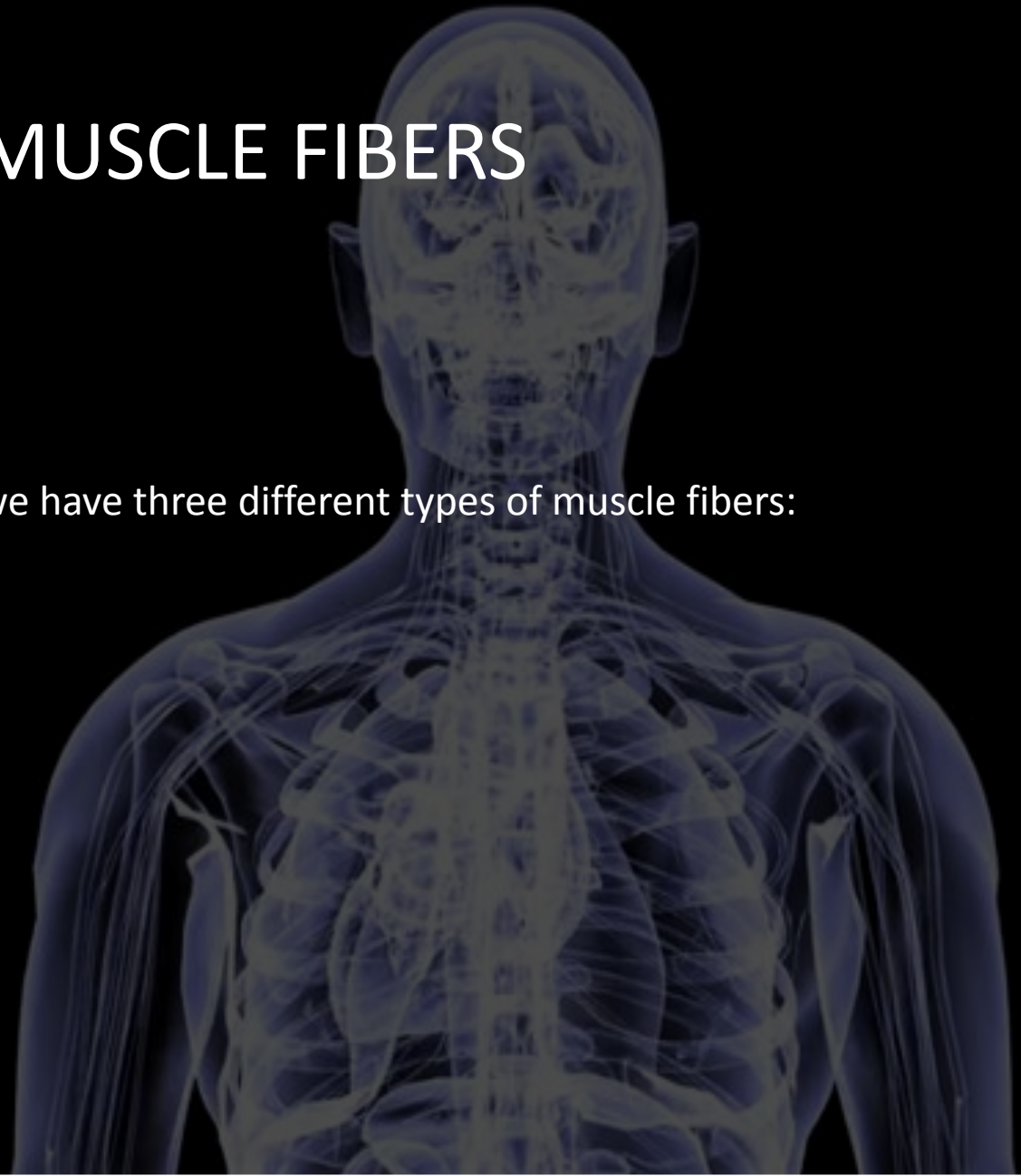


- This system becomes dominant after 2 minutes
- It is aerobic due to needing oxygen
- The waste products are H_2O and CO_2
- It is used for sports such as marathons

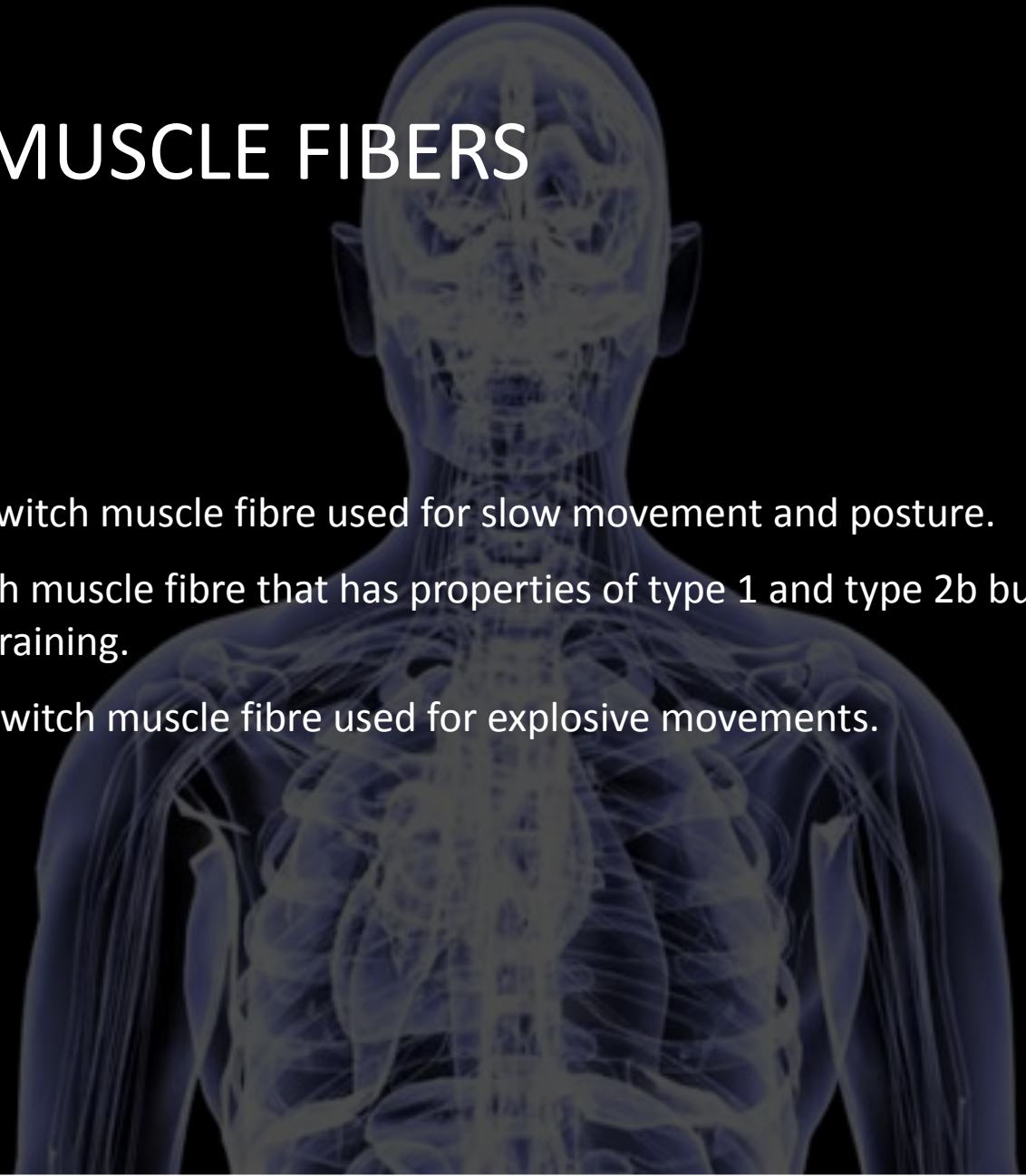
MUSCLE FIBERS

TYPES OF MUSCLE FIBERS

- Within the body we have three different types of muscle fibers:
- Type 1- slow
- Type 2a- medium
- Type 2b- fast



TYPES OF MUSCLE FIBERS



- Type 1: is a slow twitch muscle fibre used for slow movement and posture.
- Type 2a: is a twitch muscle fibre that has properties of type 1 and type 2b but can be changed depending upon training.
- Type 2b: is a fast twitch muscle fibre used for explosive movements.