

# Topographical Anatomy

## Introduction

A working knowledge of human anatomy is important for you as an EMT. By using the proper medical terms, you will be able to communicate correct information to medical professionals with the least possible confusion. At the same time, you need to be able to communicate with others who may or may not understand medical terms. Balancing these two facets is one of the most challenging aspects of your job. A basic understanding of human anatomy, physiology, and pathophysiology is essential so that you can meet these challenges.

We will begin with a discussion of topographic anatomy, or the landmarks on the surface of the body. The various parts of the body, or its anatomy, are then described. This information will provide you with the correct medical terms you will use in the field. Physiology, or the functions of the body or any of its parts, is also covered. Finally, pathophysiology is discussed, which describes how normal physiologic processes are affected by disease.

## Topographic Anatomy

The surface of the body has many definite visible features that serve as guides or landmarks to the structures that lie beneath them. You must be able to identify the superficial landmarks of the body - (topographic anatomy) - to perform an accurate assessment. **But how do we know that everyone is looking at the body in the same orientation?**

To accomplish this, the terms that are used to describe the topographic anatomy are applied to the body when it is in the anatomic position. This is a position of reference in which the patient stands facing you, arms at the side, with the palms of the hands forward. The anatomic position is used as a common starting point so that everyone is referring to the body in the same way. For example, you are looking at a person who is complaining of pain in his arm. **Which left or right do you use? Your left or the patient's left?** To be consistent, health care providers use the patient's left or right as the reference point.

# PRONE POSITION



These terms describe the position of the body. The body is in the prone position when lying face down; the body is in the supine position when lying face up.

# SUPINE POSITION



These terms describe the position of the body. The body is in the prone position when lying face down; the body is in the supine position when lying face up.

# FOWLER'S POSITION

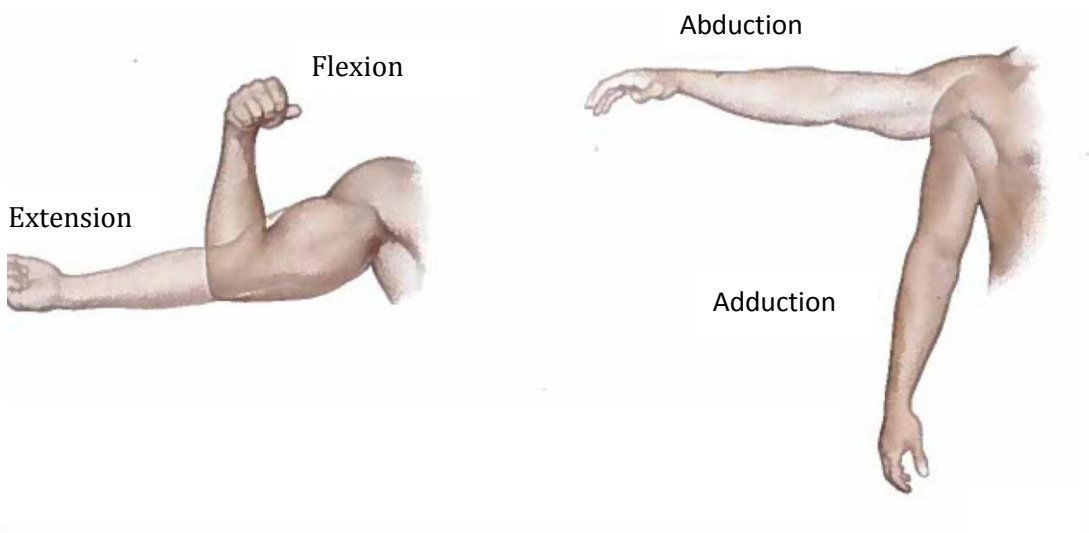


The Fowler's position was named after a US surgeon George R. Fowler, MD at the end of the 19<sup>th</sup> century. Dr. Fowler placed his patients in a semi-reclining position with the head elevated to help them breathe easier and to control the airway. A patient who is sitting up with the knees bent is therefore said to be in the Fowler's position.

# RECOVERY POSITION



The recovery position refers to one of a series of variations on a lateral recumbent or three-quarters prone position of the body, in to which an unconscious but breathing casualty can be placed as part of first aid treatment.



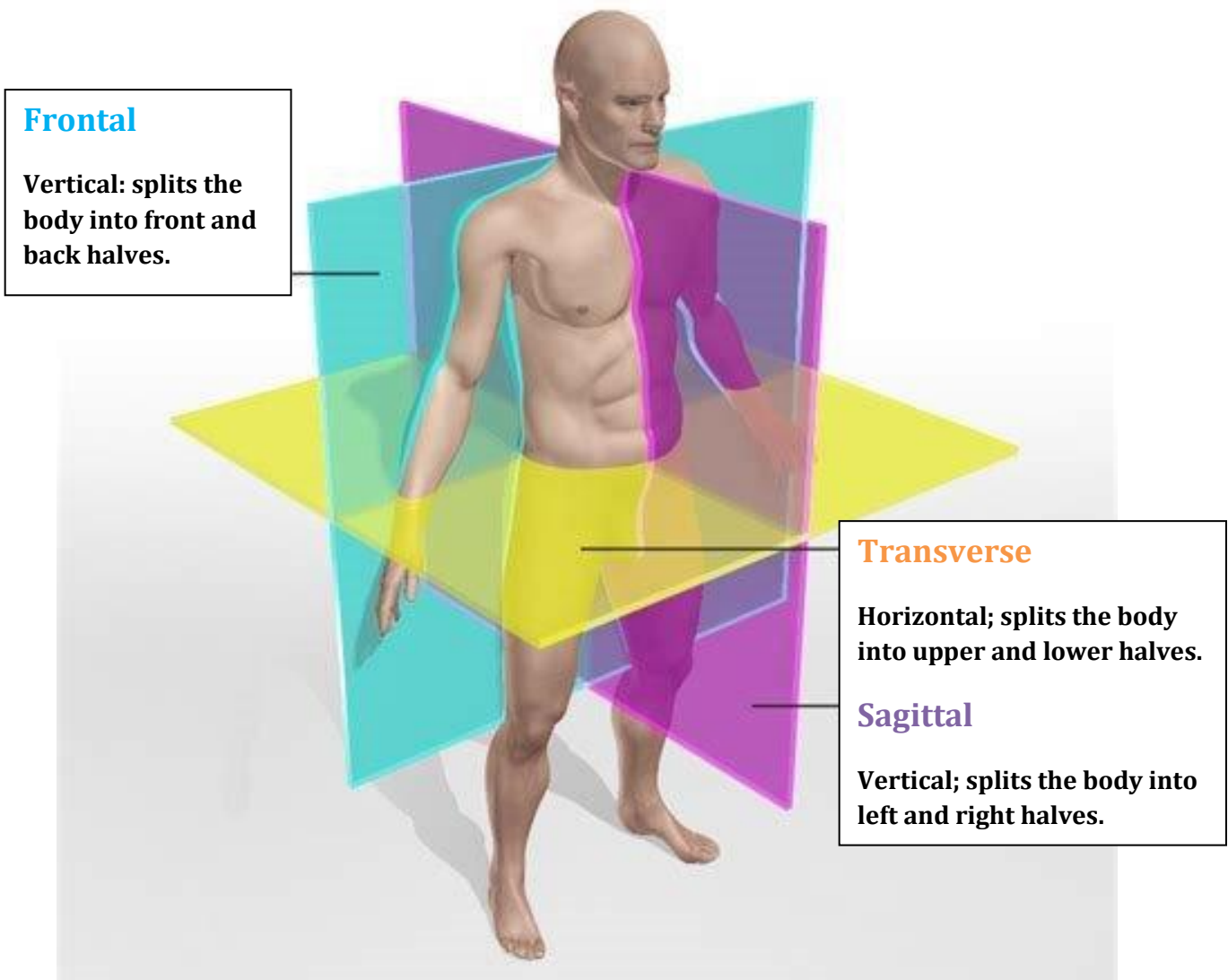
**The following terms relate to movement;**

- Flexion is the bending of a joint
- Extension is the straightening of a joint
- Adduction is motion towards the midline
- Abduction is motion away from the midline

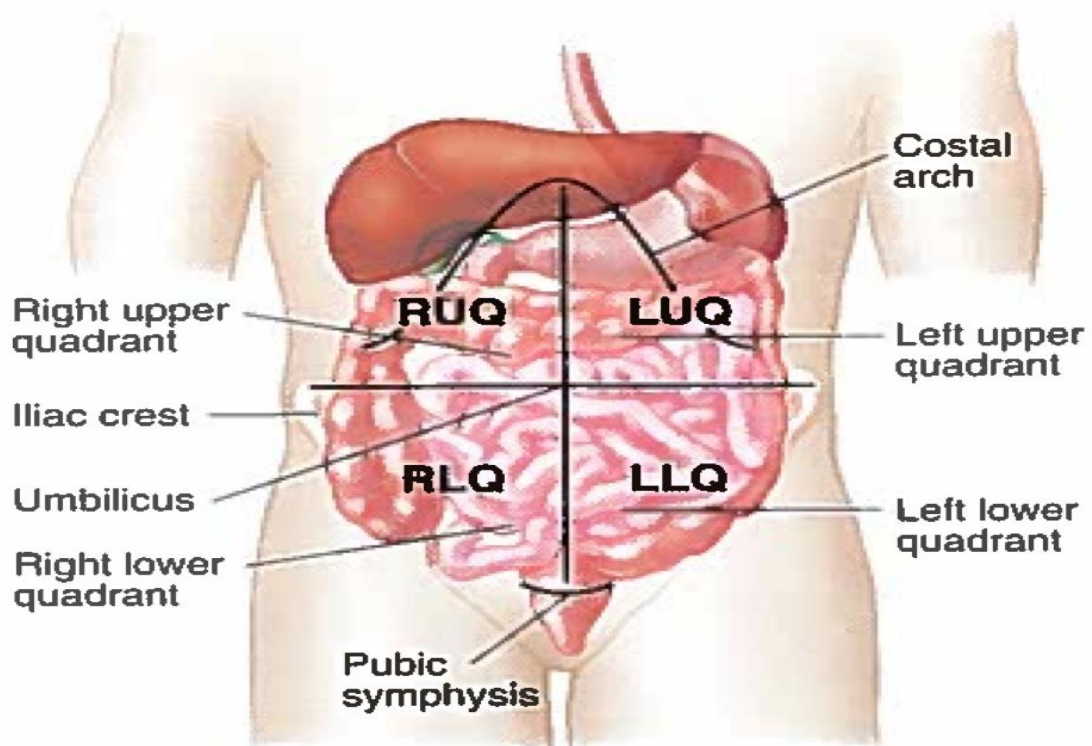
## *Planes of the Body*

The anatomic planes of the body are imaginary straight lines that divide the body. There are three main axes of the body depending on how it is sliced. Slicing the body so that you have a front and back portion creates the frontal or coronal plane. If the body is sliced so the result is a top and bottom portion, this is referred to as the transverse (axial) plane. If the body is sliced so that you have a left and right portion, a sagittal (lateral) plane is formed.

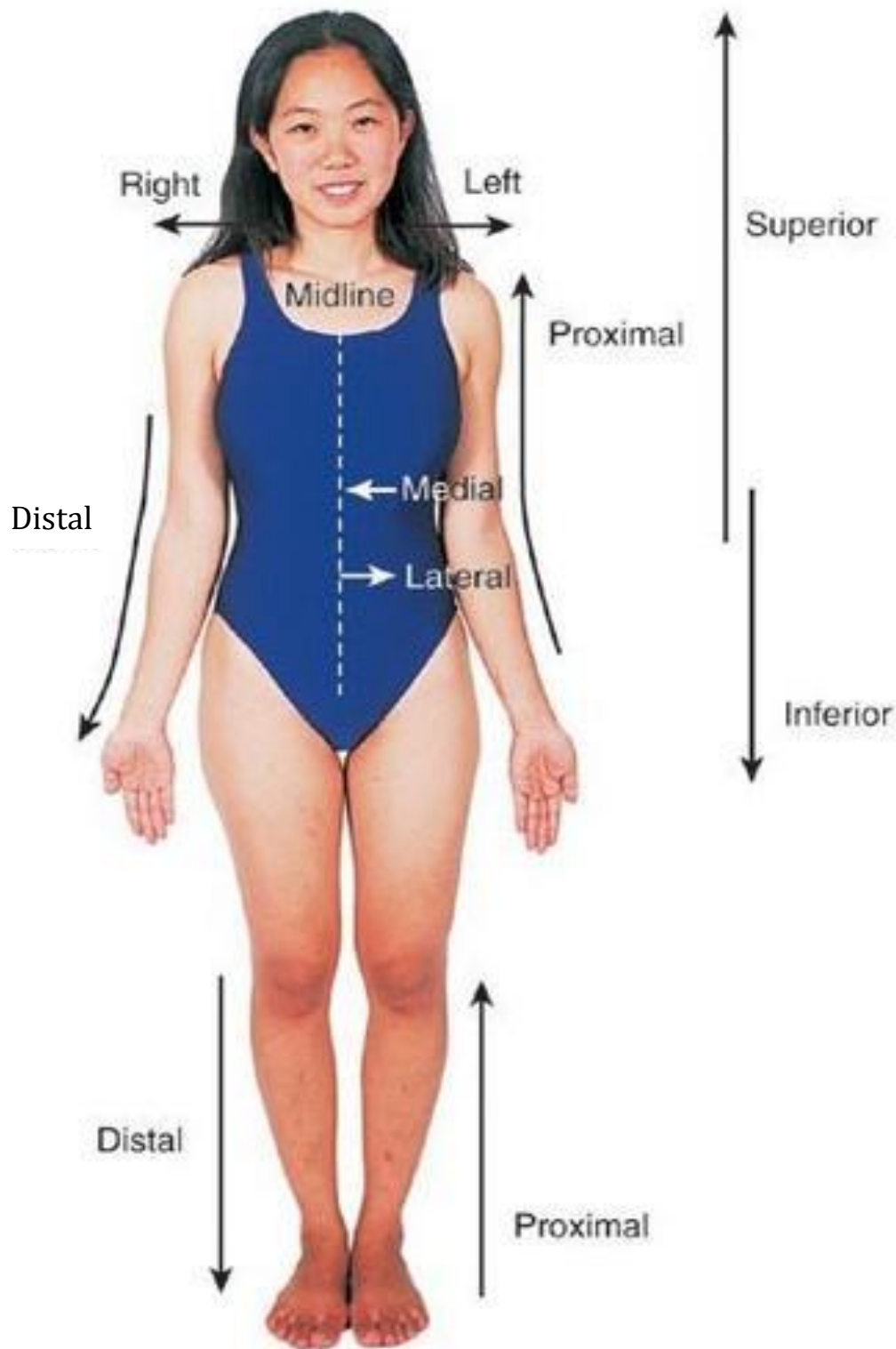
As part of your assessment process, you will have to palpate the abdomen and report your findings. You will need to describe exact locations based on Quadrants.



- Right Upper Quadrant – RUQ
- Right Lower Quadrant – RLQ
- Left Upper Quadrant - LUQ
- Left Lower Quadrant – LLQ



## Directional Terms



When you are discussing where an injury is located or how pain radiates in the body, you need to know the correct directional terms. Take notice how directional terms are paired as “opposites.”

## **SUPERIOR & INFERIOR**

The **superior** part of the body, or any body part, is the portion nearer to the head from a specific reference point. The part nearer to the feet is the **inferior** portion. These terms are also used to describe the relationship of one structure to another. For example; the abdomen is superior to the femur and inferior to the neck.

## **LATERAL & MEDIAL**

Parts of the body that lie farther from the midline are called **lateral** (outer) structures. The parts that lie closer to the midline are called **medial** (inner) structures. For example; in the anatomical position, the ulna is medial to the radius.

## **PROXIMAL & DISTAL**

The terms “proximal” and “distal” are used to describe the relationship of any two structures on an extremity. **Proximal** describes structures that are closer to the trunk. **Distal** describes structures that are farther from the trunk or nearer to the free end of the extremity. For example; the elbow is distal to the shoulder, and proximal to the wrist.

## **PALMAR & PLANTAR**

The term “Palmar” refers to the “palm” surface of the hand. The term “Plantar” refers to the bottom of the foot.

## **TRENDELENBURG “SHOCK” POSITION**

Trendelenburg Position (also known as the shock position) is a position of the body in which the patient is laid supine or flat on their back with the feet higher than the head by 15-30 degrees.