

TOPIC: VARIATION IN ANATOMY AND PHYSIOLOGY

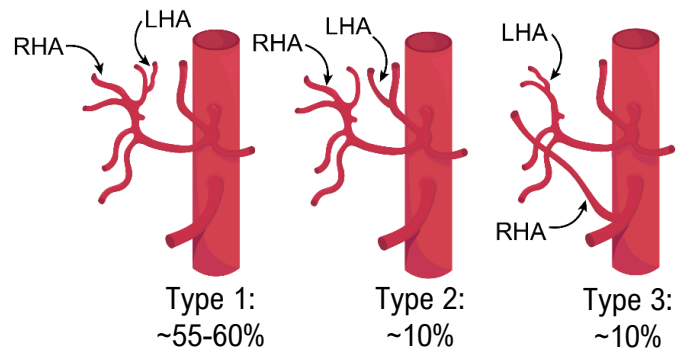
Reference body

- “Standard” body that is used for _____.
 - _____, healthy adult.
- Reference bodies _____ learning anatomy.
 - Variation is _____.
 - Extreme variation is _____;
 - structures must be able to perform life's _____.
- Defining “normal variation” can be difficult!
 - How _____ is it?
 - Does it cause a _____?

Female:	Male:
5'4" (164 cm)	5'9" (175 cm)
125 lbs (57 kg)	155 lbs (70 kg)



EXAMPLE: The most common cited cause of medical error during surgery is “anatomical variation”. There are 10 named variants in the arrangement of the blood vessels that lead to the kidney and gall bladder. The three most common are shown in the image to the right. The locations of the right hepatic artery (RHA) and left hepatic artery (LHA) are labeled each image.



a) Using information from the image, why you think textbooks usually only present one blood vessel branching structure?

b) Why do think that may sometimes be a problem?

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PRACTICE: Name three characteristics of the anatomical reference body?

- a) Young, male, 6 feet tall.
- b) Female, average height, young.
- c) Young, low body fat, average height.
- d) Female, 5' 9", 155 lbs.

PRACTICE: If variation exists between people, what is one reason we use a reference body to convey information?

- a) So that people have a reference for exactly their bodies should be structured.
- b) Using a reference body gives one reference frame, simplifying the amount of information we need to learn.
- c) Students studying anatomy are usually young adults, so the reference body is also a young adult.
- d) Variation is usually viewed as abnormal and so studied as a part of disease.

PRACTICE: Situs inversus is a rare genetic condition in which the internal organs are on the opposite side of the body compared to their normal position. When all the organs are in this flipped position, the organs can often function as normal. Is Situs Inversus a variation of normal anatomy or normal physiology?

- a) Variation of normal anatomy because the location of the structures is changed.
- b) Variation of normal physiology because the organs function differently.
- c) Variation of both normal anatomy and physiology because the changed location changes the function.
- d) Neither, because many of the individuals can function perfectly well.