

Objective:

Familiarize yourself with osteological stature estimation. Practice estimating stature using osteological equations and think critically about how the method is applied, what it actually says about people, and problems that may be associated with the techniques.

Materials:

- Tape measure
- Calculator
- Graph Paper
- Multi coloured pens/pencils

Method:

1. Use the tape to measure the max length (in cm) of your partner's:

Right Ulna	Total height
from the proximal-most point of the olecranon process to the distal-most point at the wrist	Measured against the wall
	
Length: _____	Biological Height: _____

2. Use the appropriate equation provided (see next page) to estimate stature from the ulna measurements

Stature estimated from the ulna: _____cm

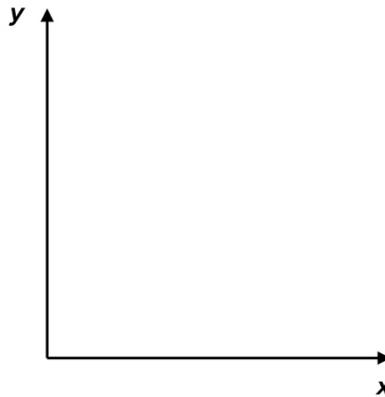
Ulna Stature Equations (don't forget your order of operations [BEDMAS]):*

Ancestry	Male	Female
White	$3.70 \times \text{Ulna} + 74.05 \pm 4.32$	$4.27 \times \text{Ulna} + 57.76 \pm 4.30$
Black	$3.26 \times \text{Ulna} + 79.29 \pm 4.42$	$3.31 \times \text{Ulna} + 75.38 \pm 4.83$
East Asian	$3.48 \times \text{Ulna} + 77.45 \pm 4.66$	No formula available**
Mexican	$3.56 \times \text{Ulna} + 74.56 \pm 4.05$	No formula available**

* equations after Trotter (1970), as published in White & Folkens (2005)

** this is a pretty big limitation! How will you approach it? Work as a group to brainstorm.

3. On your white board, create a chart and list these heights (ulna & biological) along with the stature that is printed on your driver's license (or what you tell people). I would like to collect this data so I can visualize it for you next week – so chart it clearly for me!
4. Each pod should divide into ~3 groups. Agree on a scale for your graphs, and create scatterplots using the data you've collected. Colour code your data points by sex (does not need to be a binary)
 - Group 1: ulna length (x axis) vs. living stature (y axis)
 - Group 2: ulna length (x axis) vs. reported stature (y axis)
 - Group 3: living stature (x axis) vs. reported stature (y axis)



5. Work together to compare and contrast the graphs you have made. **Discuss** the following:
 - a. Is there a relationship between ulna length and living stature? Is it what you expected?
 - b. Are there any data points that are not what you expected? What could be the reason(s) for this?
 - c. Would your results change if you only used the left ulna, or sometimes used the right ulna? (Maybe try it out?)
 - d. What are the challenges associated with creating a stature estimation method from the maximum length of one bone? Can all of these challenges be overcome?
 - e. Looking at the measured height versus driver's license height, discuss whether the data points line up. If not, why not? What does this tell you about self-reported height? What challenges might this present in a forensic context?