Descriptive Statistics: simple ways to summarize data

mean=the mathematical average
this term is a better term than average b/c we sometimes use "average" for norm

median=midpoint of data when ranged fr. smallest---> largest
mode=most common data point

in science, we do not usually use median or mode

range=gives us the lowest data------>highest data
it is used to show how wide-ranging the data is
excel gives the range as one number, but I would rather see the actual range when you discuss the data, in other words give me the lowest point and the highest point

Heart Rate at Rest

Per B	mean= 65.2	range= 45.3-80.0
Per F	mean= 66.2	range= 57.3-77.3
Per H	mean= 71.6	range= 44.7-94.0

Standard Deviation

also gives a range, but it shows where most of the data is found

this is a formula that gives an indication of the spread or variability of the data

it is calculated so that 68% of data lies w/in + 1SD from the mean

to calculate SD, you have to take each data point to see how it deviates (differs) from the mean

SD gives an idea of the reliability of the data

it is a reflection of how good, accurate, careful your methods were

a small SD is good, but it must be looked at in terms of the mean (relatively small number in relation to the mean)

heart rate data at rest

Per B	range= 45.3-80.0	mean= 65.2	SD= + 8.5
Per F	range= 57.3-77.3	mean= 66.2	SD= + 5.2
Per H	range= 44.7-94.0	mean= 71.6	SD= + 12.4

Per B StDev range=56.7-73.7

Per F StDev range=61.1-71.4

Per H StDev range=59.2-84.0

95% Confidence Interval

this statistic gives info about the ***true mean***

what is the true mean? if we sampled every 16-17 yr old female in the world, we could find the true mean

but that is impossible, instead, we sample populations to get a mean

the 95% confidence interval is a statistical formula that says there is a 95% probability that the true mean lies within a range around the mean

we use this info to tell us if one data set is significantly different from another one

if the CI range overlaps, then the true mean could be the same

if it does not overlap, the true mean is different (95% chance)

heart rate at rest

Per B	mean= 65.2	95%CI= 3.2	62.0-68.4
Per F	mean=66.2	95%CI= 2.1	64.1-68.3
Per H	mean= 71.6	95%CI=5.2	66.4-76.8