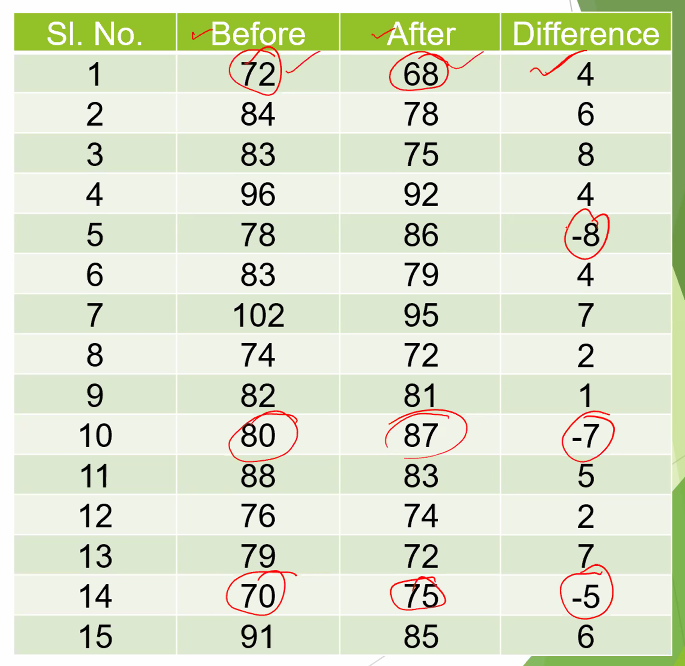
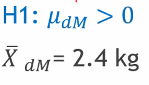
# Comparison Between two populations

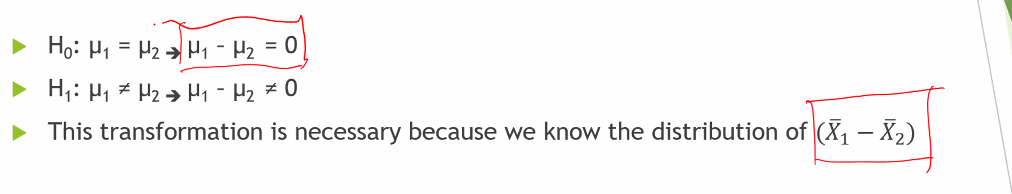
Very important in analytics.

Chubby chunky example

**Matched Samples:** Same person we got two different readings



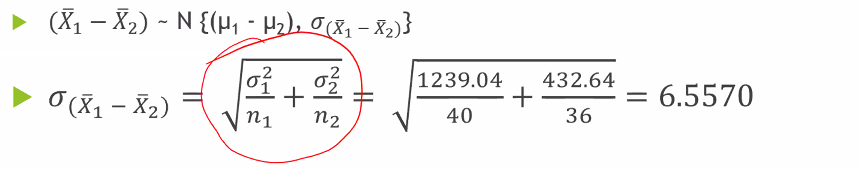
Difference (d) for Men (M) 

We know the distribution of X1\_bar and X2\_bar. These are unmatched samples and independent. Then we go for estimate difference.X

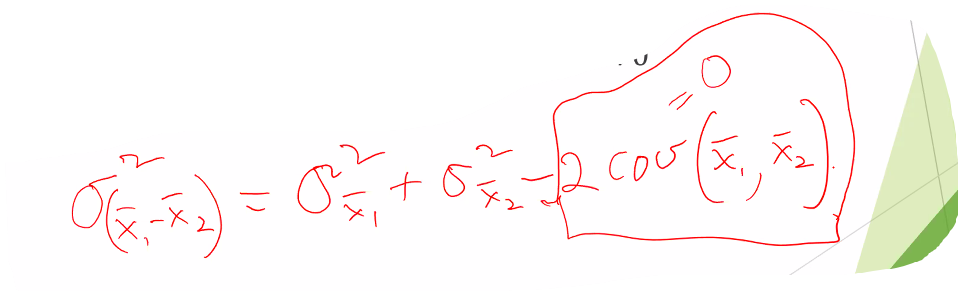
For linear combination of X1\_bar and X2\_bar each being normally distributed is also normally distributed.

Thus if we have matched samples we have to take difference in observations.

If we have unmatched samples we take difference in estimates.



Need to prove the σ(X1\_bar and X2\_bar).

….. self proof required.

Here assumed COV(X1\_bar and X2\_bar) ~ 0.

Practice problem.