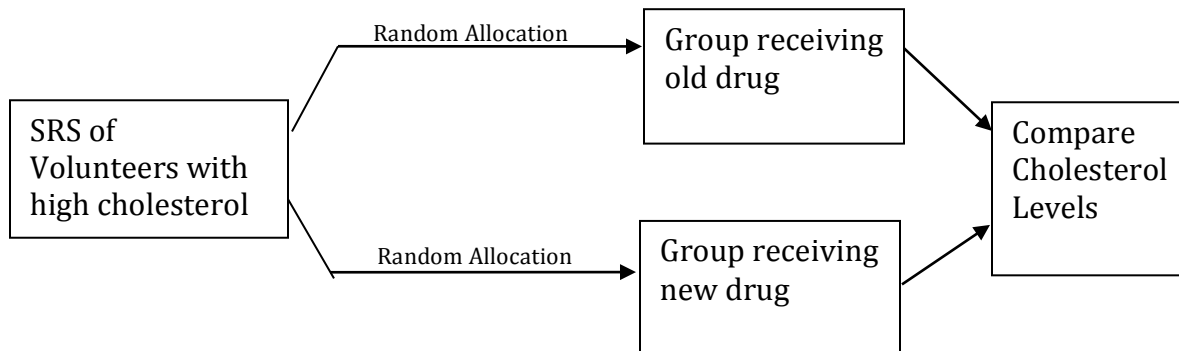


## Lesson 62: Comparing means from two groups (confidence interval)

When we learned about designing scientific studies we had a basic format for testing two competing claims. For example, if a pharmaceutical company comes up with a new medication for lowering cholesterol and we want to test it, we would compare it to the current medication for lowering cholesterol using the following basic design:



We learned how to randomly select from the population

Describe:

We learned how to randomly allocate treatments

Describe:

We learned how to block

Describe:

We learned about blinding

Describe:

But we **don't know how to compare** the two groups. Until today!

## Daily Data Collection

Question: Does the length of time a person can hold our textbook in front of themselves with arms straight and parallel to the ground reduce from set 1 to set 2?

Step 1: randomly select half the class for the treatment.

Step 2: The treatment group will stand and hold the textbook out in front of themselves with arms straight and parallel to the ground for 30 seconds. The control group can run the clock.

Step 3: Now the treatment group gets exactly 30 seconds of rest.

Step 4: Now everyone repeats the test TO EXHAUSTION and records their time in seconds.

### Old Thinking

	Treatment	Control
x-bar =		
n and DF =		
Sx =		
St. Dev. of x-bar =		
T =		
Error =		
Interval =		

Conclusions:

### New Thinking

	Confidence Interval of x-bar1 – x-bar 2
x-bar (Con) – x-bar (Tr) =	
St. Dev. of Difference =	
DF and T =	
Error =	
Interval =	

Conclusions:

## Daily Data Collection

Collect more data in class on the difference between two populations.

Example: groups – boys and girls. Question: How many days since you last used a razor/shaved?