



INVESTIGATOR



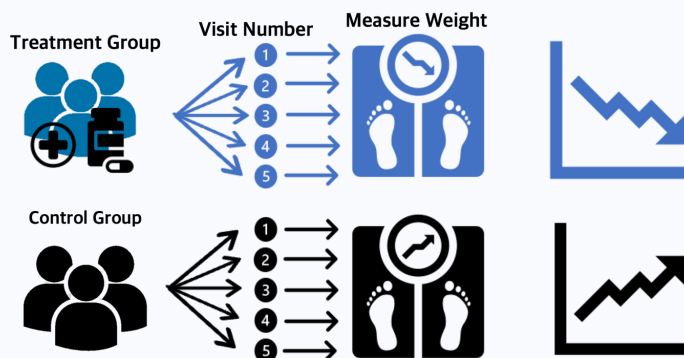
Hi Joelle! I'd like to know whether a novel diet can help women lose weight ?

YES! I found out Novel Diet helps women losing weight

Let me guide you through my study below

## STUDY DESIGN

The study included data from 500 women who received treatment and 500 women who did not receive treatment.



Everytime they visit, I measure the weight(outcome).

## DATA SET

id	outcome	visitnumber	treatment	age
1	149.125460	1	1	61.899478
1	137.229366	4	1	61.899478
1	133.096258	5	1	61.899478
2	160.854708	1	1	62.813407
2	155.566215	2	1	62.813407

ID (patient ID): A total of 1000 women

**Outcome** (Weight) is not normally distributed but has a strong correlation coefficient with the predicted variable

**Visit Number** (1,2,3,4,5)

**Treatment** (1(yes) or 0(no))

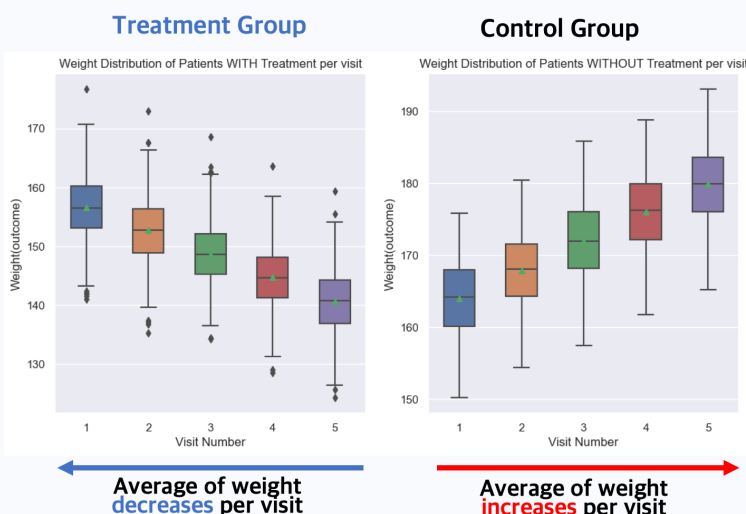
**Age** (48~74) - normally distributed

## HYPOTHESIS

$H_0$ : There is NO significant relationship between the outcome variable and the predictor variables

$H_a$ : There is a significant relationship between the outcome variable and the predictor variables

## WEIGHT Distribution



From the weight distribution boxplot above, you could see that the **treatment group's average weight had decreased**, otherwise, the control group's average is increasing.

## LINEAR MIXED MODEL RESULT

LMM was used to investigate the relationship between the outcome variable and the predictor variables and test my hypothesis

	Coef.	Std.Err.	z	P> z	[0.025	0.975]
Intercept	160.730	2.657	60.482	0.000	155.521	165.939
treatment	0.885	0.349	2.538	0.011	0.201	1.568
age	-0.013	0.044	-0.298	0.765	-0.100	0.073
visitnumber	3.998	0.015	264.647	0.000	3.969	4.028
treatment:visitnumber	-8.043	0.021	-375.195	0.000	-8.085	-8.001
Group Var	29.070	1.485				

If the p-value is smaller than alpha(0.05) we can conclude that the variable significantly affects the outcome(weight)

### [Brief Results]

1. Treatment significantly affects the outcome(weight) loss and its effect increased over time.
2. Age did not have a significant effect on the outcome(weight).
3. Visit number had a significant positive effect on the outcome variable, while the treatment effect was more pronounced over time.



Based on my study, I could confirm that a novel diet can help women lose weight! Please Let me know if you have any questions!

