In the Journal of Nutrition (July 1995), University of Georgia researchers examined the impact of vitamin-B supplement (nicotinamide) on the kidney. The experimental subjects were 28 Zucker rats – a species that tends to develop kidney problems. Half of the rats were classified as obese and half as lean. Within each group, half were randomly assigned to receive a vitamin-B-supplemented diet and half were not. Thus, a 2 X 2 factorial experiment was conducted, with seven rats assigned to each of the four combinations of size(lean or obese) and diet (supplemental or not). One of the response variables measured was weight (in grams) of the kidney at the end of a 20-week feeding period.

Row	WEIGHT	RATSIZE	DIET
1	1.62	LEAN	REGULAR
2	1.47	LEAN	REGULAR
3	1.80	LEAN	REGULAR
4	1.37	LEAN	REGULAR
5	1.71	LEAN	REGULAR
6	1.71	LEAN	REGULAR
7	1.81	LEAN	REGULAR
8	1.51	LEAN	VIT-B
9	1.63	LEAN	VIT-B
10	1.65	LEAN	VIT-B
11	1.35	LEAN	VIT-B
12	1.45	LEAN	VIT-B
13	1.66	LEAN	VIT-B
14	1.44	LEAN	VIT-B
15	2.35	OBESE	REGULAR
16	2.84	OBESE	REGULAR
17	2.97	OBESE	REGULAR
18	2.05	OBESE	REGULAR
19	2.54	OBESE	REGULAR
20	2.82	OBESE	REGULAR
21	2.93	OBESE	REGULAR
22	2.93	OBESE	VIT-B
23	2.63	OBESE	VIT-B
24	2.72	OBESE	VIT-B
25	2.61	OBESE	VIT-B
26	2.99	OBESE	VIT-B
27	2.64	OBESE	VIT-B
28	2.19	OBESE	VIT-B

Results for RATSIZE = LEAN

Variable	DIET	N	Mean	StDev
WEIGHT	REGULAR	7	1.6414	0.1666
	VIT-B	7	1.5271	0.1215

Results for RATSIZE = OBESE

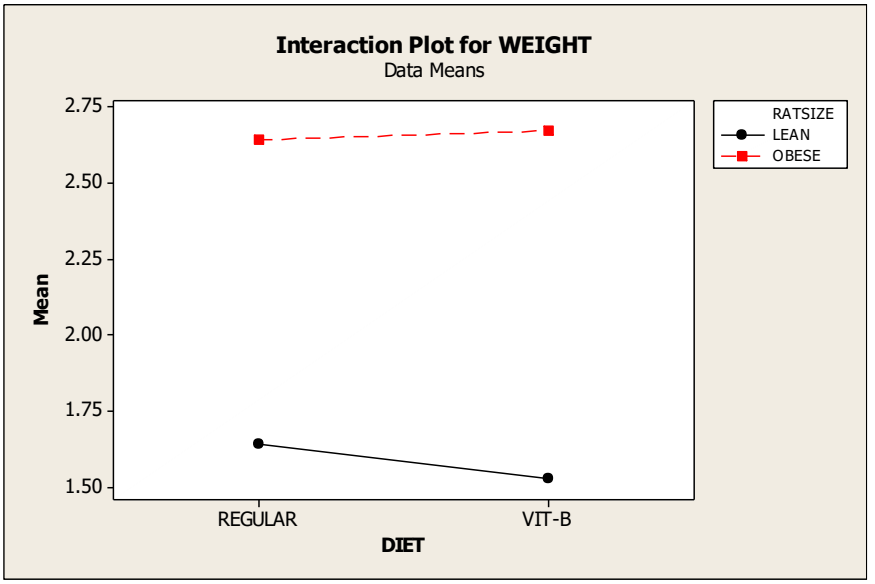
Variable	DIET	N	Mean	StDev
WEIGHT	REGULAR	7	2.643	0.343
	VIT-B	7	2.6729	0.2611

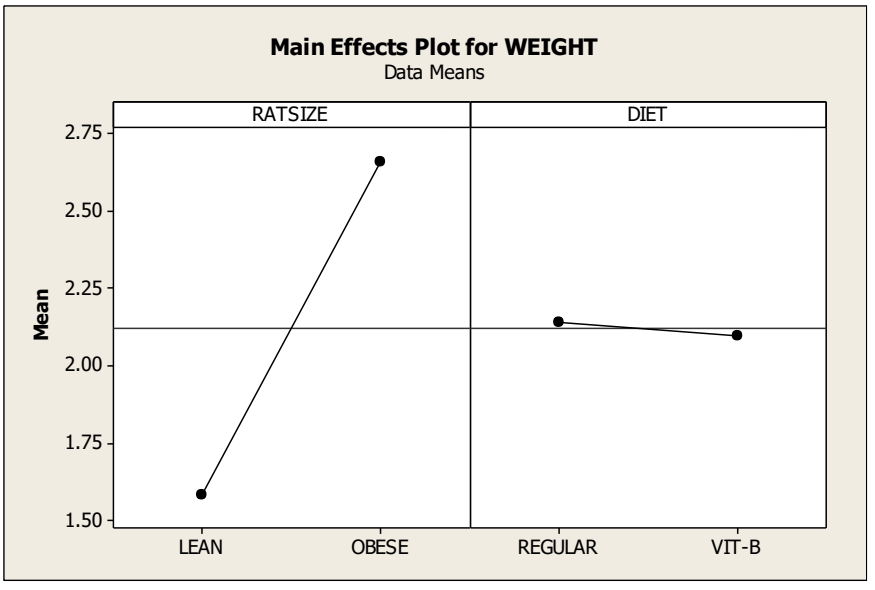
Descriptive Statistics: WEIGHT

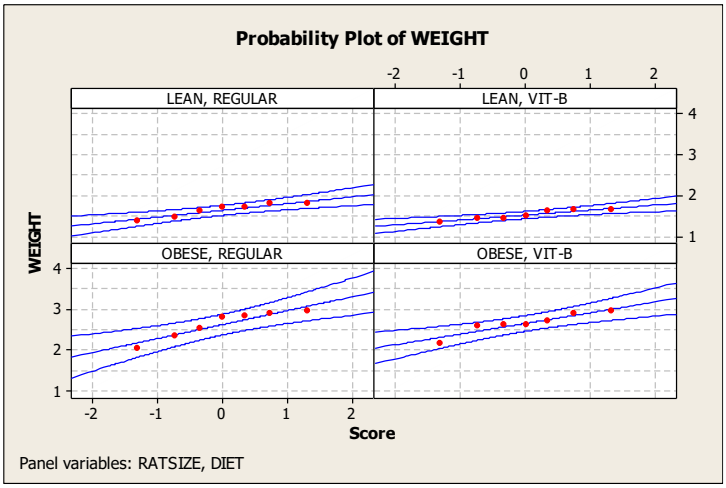
Variable	RATSIZE	N	Mean	StDev
WEIGHT	LEAN	14	1.5843	0.1521
	OBESE	14	2.6579	0.2935

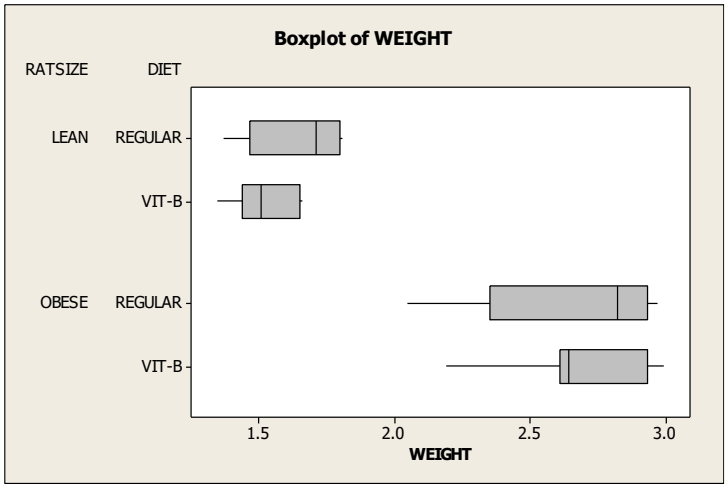
Descriptive Statistics: WEIGHT

Variable	DIET	N	Mean	StDev
WEIGHT	REGULAR	14	2.142	0.581
	VIT-B	14	2.100	0.626









General Linear Model: WEIGHT versus RATSIZE, DIET

```
Factor   Type   Levels  Values
RATSIZE  fixed       2  LEAN, OBESE
DIET     fixed       2  REGULAR, VIT-B

Analysis of Variance for WEIGHT, using Adjusted SS for Tests

Source        DF  Seq SS  Adj SS  Adj MS       F      P
RATSIZE        1  8.0679  8.0679  8.0679  141.18  0.000
DIET           1  0.0124  0.0124  0.0124    0.22  0.645
RATSIZE*DIET   1  0.0364  0.0364  0.0364    0.64  0.432
Error         24  1.3715  1.3715  0.0571
Total         27  9.4883


S = 0.239053   R-Sq = 85.55%   R-Sq(adj) = 83.74%
```

```
Grouping Information Using Tukey Method and 95.0% Confidence

RATSIZE   N   Mean  Grouping
OBESE    14  2.658  A
LEAN     14  1.584     B

Means that do not share a letter are significantly different.


Tukey 95.0% Simultaneous Confidence Intervals
Response Variable WEIGHT
All Pairwise Comparisons among Levels of RATSIZE
RATSIZE = LEAN  subtracted from:

RATSIZE   Lower  Center  Upper  ------+---------+---------+---------+
OBESE    0.8871   1.074  1.260  (--------------*---------------)
                               ------+---------+---------+---------+
                                   0.96      1.08      1.20      1.32
```