

Amount 1	Type														
	1					2					3				
	118	117	111	107	104	120	108	105	102	102	111	98	95	92	88
	102	100	87	81	73	98	96	94	91	79	86	82	77	74	56
	(mean 100)					(mean 99.5)					(mean 85.9)				
2	95	90	90	90	86	106	97	86	82	82	107	98	97	95	89
	78	76	72	64	51	81	73	70	61	49	80	74	74	67	58
	(mean 79.2)					(mean 78.7)					(mean 83.9)				

Analysis of Variance Table

Response: WeightGain

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
DietAmount	1	3168.3	3168.3	14.7666	0.0003224 ***
DietType	2	266.5	133.3	0.6211	0.5411319
DietAmount:DietType	2	1178.1	589.1	2.7455	0.0731879 .
Residuals	54	11586.0	214.6		

The interaction effect is significant at 0.10 level.

Compare the two diet amount at type=1: (1-2).

$$100 - 79.2 \pm 2.005 * \sqrt{214.6} * \sqrt{1/10 + 1/10} = (7.66, 33.94).$$

Compare the two three types at amount 1 (1-2, 1-3, 2-3) use Bonferroni

adjustment:

$$1-2: 100 - 99.5 \pm 2.4707 * \sqrt{214.6} * \sqrt{1/10 + 1/10} = (-15.68, 16.69).$$

$$1-3: 100 - 85.9 \pm 2.4707 * \sqrt{214.6} * \sqrt{1/10 + 1/10} = (-2.09, 30.29).$$

$$2-3: 99.5 - 85.9 \pm 2.4707 * \sqrt{214.6} * \sqrt{1/10 + 1/10} = (-2.59, 19.79).$$

Now suppose interaction is not significant:

Compare the two amount (1-2).

$$95.13 - 80.6 \pm 2.005 * \sqrt{214.6} * \sqrt{1/30 + 1/30} = (6.95, 22.11).$$

Verify that $SSA_{mount} = 3168$.

$$(95.13 + 80.6) / 2 = 87.865$$

$$30 * [(95.13 - 87.865)^2 + (80.6 - 87.865)^2] = 3167.$$