

Anova



**ASSIGN
BUSTER**

Assignment 3 (Part 3) - Statistical Analysis of Data - ANOVA (One Way Analysis of Variance) A. Research Question: Is there a difference in the % water content between the groups of kidney exposed to varying times of ischemia?

B. Null Hypothesis:

There is no difference in the % water content between the group of kidneys exposed to varying times of ischemia. In other words, there is no effect of varying times of ischemia on % content of water in the group of kidneys. In symbolic form,

$H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$ (all the means are equal)

(1-Control, 2-30 min ischemia, 3-60-min ischemia, 4-120 min ischemia)

The alternate hypothesis will be

H_1 : Not all the means are equal (at least one mean is different)

C. Summary of Results of Statistical Analysis

Table 1: The % Water Content (Data)

Control (no ischemia)

30 min ischemia

60 min ischemia

120 min ischemia

78.5

83.0

81.8

83.5

79.2

81.9

81.1

83.5

78.9

83.0

82.3

81.4

79.7

79.8

79.7

81.5

78.6

79.0

Table 2: Descriptive Statistics

Ischemia

n

Mean (X)

SEM

St. Dev

Minimum

Maximum

Q1

Median

Q3

Control

7

79.09

0.182

0.481

78.5

79.7

78.60

79.0

79.70

30 min

3

82.63

0.367

0.635

81.9

83.0

81.90

83.0

83.00

60 min

5

81.30

0.423

0.946

79.8

82.3

80.45

81.5

82.05

120 min

3

82.80

0.700

1.212

81.4

83.5

81.40

83.5

83.50

Table 3: Analysis of Variance Table

Source SS df MS F η^2 * F Crit p Significant

Between 43.6833 14.5612 3.3983 3.34