DIET AND LONGEVITY STUDY

10. The Nonparametric Approach

The model presented in Section 8 has the underlying assumption of normality. If this assumption is not reasonable, the nonparametric Kruskal-Wallis test procedure provides a very good alternative. The test is based on an analysis of appropriate ranks of the data observations. In our case study the assumption of normality is slightly violated because outliers are present in the data. The Kruskal-Wallis test tends to have more power in this case.

The Kruskal-Wallis test output in SPSS for the diet restriction study is displayed below. The instructions how to obtain the output are given in the *Computer Instructions* module.

Kruskal-Wallis 1-Way Anova

LIFETIME
by GROUP

Mean Rank	**Cases**	
52.37	49	Group = 1
101.03	57	Group = 2
179.97	56	Group = 3
215.98	71	Group= 4
221.36	56	Group = 5
249.02	60	Group = 6

	349	Total

Chi-Square	D.F.	Significance
159.0128	5	.0000

The p-value of the test is reported as zero indicating strong evidence against the assumption of no treatment effects. This is consistent with the results obtained with the F-test.