

**Disclaimer: While the data comes from official AERC records – the analysis and conclusions below are not officially sanctioned by the AERC.**

## **Analysis of Ride Times LD/50 Mile for 2002**

**1. Introduction:** In a continuing effort to get a better understanding of our sport, this study was done on the average ride times per region of "50 mile rides" and of Limited Distance rides. The average speeds of LD rides and were compared on a inter-regional basis as were the 50 mile rides. The LD and 50 mile rides were also compared on an intra-regional basis. The 50 mile category includes rides (including the days of Pioneer events) of distances 50, 55 and 60 miles. The entire 2002 AERC seasons was used for this analysis. Because of concern that the average ride time did not adequately reflect the extremes of the speed at which (particularly LD) were being ridden, the analysis also includes the analysis of the top five ride times for LD vs. 50 mile ride on an intra regional basis.

The factor used for this analysis was the ride times normalized to the distance. This results in units of minutes per mile for ride time. This is related to the average speed by miles per hour =  $60/(\text{minutes per mile})$ . This normalization allows the comparison of rides on different distances.

**2. Method of Analysis:** The method of analysis chosen is the standard statistical method known as Analysis of Variance (ANOV) for testing the null hypothesis. The hypotheses being tested were:

- a) There is no inter-regional difference between the mean ride times for 50 mile rides.*
- b) There is no inter-regional difference between the mean ride times for LD rides.*
- c) There is no intra- regional difference between the mean ride times of LD and 50 mile rides.*
- d) There is no intra- regional difference between the mean ride times of LD and 50 mile rides of the top 5 finishers.*

The data will determine if the hypothesis can be reject – in the case of rejection of the null hypothesis, it can be said to specified certainty that there is a difference.

The total sample was 10216 50 mile riders and 6363 LD riders. Regionally these were:

	<b>50 Mile Ride</b>	<b>LD Ride</b>
CT	770	864
MT	1087	370
MW	807	877
NE	753	233
NW	1265	812
PS	1323	710
SE	1054	1374
SW	1024	340
W	2133	783
Total	10216	6363

Distribution of Finishers of LD and 50 Rides for 2002 by Region  
Table 2.1

	<b>50 Mile Ride</b>	<b>LD Ride</b>
CT	175	170
MT	217	133
MW	327	373
NE	135	60
NW	195	155
PS	140	95
SE	183	173
SW	184	118
W	350	186
Total	1806	1463

Distribution of Finishers of Top 5 LD and Top 5 50 Rides for 2002 by Region  
Table 2.5

The entries above that are not divisible by 5 are a result of inclusion of one or more small rides with less than five finisher.

Analyses were performed on the inter-regional 50 mile ride data, the inter-regional LD ride data and the intra-regional 50 mile and LD ride data. We chose 99% confidence for this study.

### 3. Results

#### 3.1 Statistical Results Inter-Regional LD ride

Region	Mean Ride Time (minutes/mile)	Mean Ride Speed (mph)
CT	9.61	6.25
MT	9.90	6.06
MW	8.72	6.88
NE	10.66	5.63
NW	9.48	6.33
PS	10.38	5.78
SE	9.06	6.62
SW	11.03	5.44
W	11.08	5.42
Total	9.75	6.15

Required F value for 99% confidence = 6.63

F value= 103.81

Conclusion: To a confidence of 99% there is an inter-regional difference in mean ride time for LD rides.

#### 3.2 Statistical Results Inter-Regional 50 mile ride

Region	Mean Ride Time (minutes/mile)	Mean Ride Speed (mph)
CT	8.89	6.75
MT	8.97	6.69
MW	7.47	8.03
NE	8.52	7.04
NW	8.73	6.87
PS	8.87	6.76
SE	8.09	7.42
SW	8.35	7.19
W	9.01	6.66
Total	8.63	6.96

Required F value for 99% confidence = 6.63

F value= 68.64

Conclusion: To a confidence of 99% there is an inter-regional difference in mean ride time for 50 mile rides.

### 3.3 Statistical Results Intra-Regional LD/50 mile ride Comparison

Region	LD-Ride Time (min/mile)	LD-Speed (mph)	50-Ride Time (min/mile)	50-Speed (mph)	F-Value
CT	9.61	6.25	8.89	6.75	30.82
MT	9.90	6.06	8.97	6.69	34.18
MW	8.72	6.88	7.47	8.03	82.04
NE	10.66	5.63	8.52	7.04	150.13
NW	9.48	6.33	8.73	6.87	38.34
PS	10.38	5.78	8.87	6.76	128.05
SE	9.06	6.62	8.09	7.42	71.16
SW	11.03	5.44	8.35	7.19	311.36
W	11.08	5.42	9.01	6.66	340.55
Total	9.75	6.15	8.63	6.96	

Required F value for 99% confidence = 6.63

F value all greater than required F value

Conclusion: To a confidence of 99% there is an intra-regional difference in mean ride time for LD and 50 mile rides for every AERC region.

### 3.4 Statistical Results Intra-Regional LD/50 mile ride top 5 Finishers Comparison

Region	LD-Ride Time (min/mile)	LD-Speed (mph)	50-Ride Time (min/mile)	50-Speed (mph)	F-Value
CT	7.61	7.89	7.45	8.02	0.39
MT	8.77	6.84	7.11	8.43	45.96
MW	7.50	8.00	6.51	9.22	38.55
NE	9.31	6.44	6.91	8.69	64.59
NW	7.24	8.28	6.99	8.58	1.35
PS	8.78	6.83	6.85	8.75	26.42
SE	6.81	8.81	6.38	9.41	4.17
SW	9.74	6.16	6.76	8.87	85.02
W	9.95	6.03	6.74	8.90	161.86
Total	8.17	7.34	6.83	8.79	

Required F value for 99% confidence = 6.63

F value greater than required F value for AERC regions MT, MW, NE, PS, SW and W.

Conclusion: To a confidence of 99% there is an intra-regional difference in mean ride time for the top 5 in LD and 50 mile rides for AERC regions MT, MW, NE, PS, SW and W. For AERC regions CT, NW and SE the null hypothesis cannot be rejected – therefore one cannot conclude to 99% confidence that there is a difference in ride times of the top 5 for LD vs. 50 mile rides.