## Table 26-9 Example of an ANOVA with a Trend Analysis: Changes in Strength Across Eight Age Groups

*Run using Oneway with Contrasts > Polynomial (Degree: Quadratic)*

```
ONEWAY Strength BY agegrp
  /POLYNOMIAL=2
  /STATISTICS DESCRIPTIVES HOMOGENEITY
  /PLOT MEANS
  /MISSING ANALYSIS.
```

# Oneway

### Descriptives

Strength

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| 10 | 10 | 52.7000 | 4.02906 | 1.27410 | 49.8178 | 55.5822 | 48.00 | 60.00 |
| 20 | 10 | 78.0000 | 9.52190 | 3.01109 | 71.1884 | 84.8116 | 68.00 | 96.00 |
| 30 | 10 | 85.1000 | 9.99389 | 3.16034 | 77.9508 | 92.2492 | 65.00 | 98.00 |
| 40 | 10 | 82.9000 | 10.51401 | 3.32482 | 75.3787 | 90.4213 | 70.00 | 102.00 |
| 50 | 10 | 73.3000 | 7.90288 | 2.49911 | 67.6466 | 78.9534 | 64.00 | 88.00 |
| 60 | 10 | 63.1000 | 4.45845 | 1.40989 | 59.9106 | 66.2894 | 59.00 | 72.00 |
| 70 | 10 | 38.4000 | 3.74759 | 1.18509 | 35.7191 | 41.0809 | 32.00 | 45.00 |
| 80 | 10 | 26.7000 | 5.18652 | 1.64012 | 22.9898 | 30.4102 | 18.00 | 35.00 |
| Total | 80 | 62.5250 | 21.46294 | 2.39963 | 57.7487 | 67.3013 | 18.00 | 102.00 |

### Test of Homogeneity of Variances

| | | Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|---|---|
| Strength | Based on Mean | 2.611 | 7 | 72 | .018 |
| | Based on Median | 1.502 | 7 | 72 | .180 |
| | Based on Median and with adjusted df | 1.502 | 7 | 43.431 | .192 |
| | Based on trimmed mean | 2.413 | 7 | 72 | .028 |

## ANOVA

Strength

| | | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|---|
| Between Groups | (Combined) | | 32426.550 | 7 | 4632.364 | 84.110 | .000 |
| | Linear Term | Contrast | 12355.438 | 1 | 12355.438 | 224.338 | .000 |
| | | Deviation | 20071.112 | 6 | 3345.185 | 60.739 | .000 |
| | Quadratic Term | Contrast | 18229.260 | 1 | 18229.260 | 330.990 | .000 |
| | | Deviation | 1841.852 | 5 | 368.370 | 6.689 | .000 |
| Within Groups | | | 3965.400 | 72 | 55.075 | | |
| Total | | | 36391.950 | 79 | | | |

## Means Plots