**输出结果1：正态性检验结果**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 变量名 | 样本量 | 平均值 | 标准差 | 偏度 | 峰度 | S-W检验 | K-S检验 |
| CALC | 1376 | 0.795 | 0.475 | -0.54 | 0.184 | 0.636(0.000\*\*\*) | 0.431(0.000\*\*\*) |
| Water\_Intake\_Per\_Kg | 1376 | 0.024 | 0.01 | 1.265 | 2.501 | 0.919(0.000\*\*\*) | 0.123(0.000\*\*\*) |
| Total\_Activity\_Score | 1376 | 1.726 | 1.066 | 0.573 | 0.153 | 0.967(0.000\*\*\*) | 0.067(0.000\*\*\*) |
| Meals\_Per\_Day | 1376 | 5.429 | 0.568 | -0.503 | -0.666 | 0.861(0.000\*\*\*) | 0.211(0.000\*\*\*) |
| Height | 1376 | 1.714 | 0.087 | -0.038 | -0.367 | 0.996(0.001\*\*\*) | 0.043(0.012\*\*) |
| BMI | 1376 | 31.167 | 8.458 | -0.014 | -1.008 | 0.971(0.000\*\*\*) | 0.06(0.000\*\*\*) |
| CH2O | 1376 | 2.062 | 0.689 | -0.082 | -0.893 | 0.803(0.000\*\*\*) | 0.266(0.000\*\*\*) |
| MTRANS | 1376 | 2.431 | 1.095 | 1.824 | 1.633 | 0.495(0.000\*\*\*) | 0.496(0.000\*\*\*) |
| CAEC | 1376 | 1.13 | 0.426 | 2.433 | 7.463 | 0.447(0.000\*\*\*) | 0.499(0.000\*\*\*) |
| Weight | 1376 | 92.136 | 27.435 | 0.033 | -0.895 | 0.974(0.000\*\*\*) | 0.089(0.000\*\*\*) |
| 注：\*\*\*、\*\*、\*分别代表1%、5%、10%的显著性水平 | | | | | | | |

**输出结果2：Kruskal-Wallis检验分析结果表**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 分析项 | 分组变量 | 样本量 | 中位数 | 标准差 | 统计量 | P | Cohen's f值 |
| CALC | Normal\_Weight | 196 | 1 | 0.58 | 222.888 | 0.000\*\*\* | 0.027 |
| Overweight\_Level\_I | 148 | 1 | 0.476 |
| Obesity\_Type\_I | 194 | 0 | 0.521 |
| Overweight\_Level\_II | 165 | 1 | 0.617 |
| Obesity\_Type\_II | 212 | 1 | 0.267 |
| Insufficient\_Weight | 137 | 1 | 0.5 |
| Obesity\_Type\_III | 324 | 1 | 0.056 |
| 总计 | 1376 | 1 | 0.475 |
| Water\_Intake\_Per\_Kg | Normal\_Weight | 196 | 0.03 | 0.01 | 513.465 | 0.000\*\*\* | 0.05 |
| Overweight\_Level\_I | 148 | 0.026 | 0.008 |
| Obesity\_Type\_I | 194 | 0.022 | 0.007 |
| Overweight\_Level\_II | 165 | 0.025 | 0.006 |
| Obesity\_Type\_II | 212 | 0.018 | 0.004 |
| Insufficient\_Weight | 137 | 0.038 | 0.013 |
| Obesity\_Type\_III | 324 | 0.02 | 0.005 |
| 总计 | 1376 | 0.023 | 0.01 |
| Total\_Activity\_Score | Normal\_Weight | 196 | 2 | 1.236 | 111.453 | 0.000\*\*\* | 0.022 |
| Overweight\_Level\_I | 148 | 1.596 | 0.91 |
| Obesity\_Type\_I | 194 | 1.625 | 1.265 |
| Overweight\_Level\_II | 165 | 1.962 | 1.049 |
| Obesity\_Type\_II | 212 | 1.518 | 0.617 |
| Insufficient\_Weight | 137 | 2.068 | 1.028 |
| Obesity\_Type\_III | 324 | 1.001 | 0.939 |
| 总计 | 1376 | 1.675 | 1.066 |
| Meals\_Per\_Day | Normal\_Weight | 196 | 5 | 0.604 | 556.851 | 0.000\*\*\* | 0.036 |
| Overweight\_Level\_I | 148 | 5.003 | 0.48 |
| Obesity\_Type\_I | 194 | 5 | 0.481 |
| Overweight\_Level\_II | 165 | 5 | 0.544 |
| Obesity\_Type\_II | 212 | 5.228 | 0.46 |
| Insufficient\_Weight | 137 | 5.721 | 0.602 |
| Obesity\_Type\_III | 324 | 6 | 0 |
| 总计 | 1376 | 5.443 | 0.568 |
| Height | Normal\_Weight | 196 | 1.67 | 0.096 | 285.803 | 0.000\*\*\* | 0.03 |
| Overweight\_Level\_I | 148 | 1.705 | 0.098 |
| Obesity\_Type\_I | 194 | 1.73 | 0.079 |
| Overweight\_Level\_II | 165 | 1.706 | 0.081 |
| Obesity\_Type\_II | 212 | 1.784 | 0.056 |
| Insufficient\_Weight | 137 | 1.704 | 0.084 |
| Obesity\_Type\_III | 324 | 1.669 | 0.065 |
| 总计 | 1376 | 1.714 | 0.087 |
| BMI | Normal\_Weight | 196 | 22.2 | 1.861 | 1334.252 | 0.000\*\*\* | 0.069 |
| Overweight\_Level\_I | 148 | 25.9 | 0.582 |
| Obesity\_Type\_I | 194 | 32.2 | 1.149 |
| Overweight\_Level\_II | 165 | 28.2 | 0.867 |
| Obesity\_Type\_II | 212 | 36.3 | 1.194 |
| Insufficient\_Weight | 137 | 17.5 | 0.881 |
| Obesity\_Type\_III | 324 | 41.9 | 2.58 |
| 总计 | 1376 | 31.25 | 8.458 |
| CH2O | Normal\_Weight | 196 | 2 | 0.633 | 69.287 | 0.000\*\*\* | 0.015 |
| Overweight\_Level\_I | 148 | 2 | 0.661 |
| Obesity\_Type\_I | 194 | 2 | 0.762 |
| Overweight\_Level\_II | 165 | 2 | 0.6 |
| Obesity\_Type\_II | 212 | 2 | 0.548 |
| Insufficient\_Weight | 137 | 2 | 0.654 |
| Obesity\_Type\_III | 324 | 2 | 0.759 |
| 总计 | 1376 | 2 | 0.689 |
| MTRANS | Normal\_Weight | 196 | 2 | 1.225 | 83.852 | 0.000\*\*\* | 0.018 |
| Overweight\_Level\_I | 148 | 2 | 1.31 |
| Obesity\_Type\_I | 194 | 2 | 1.082 |
| Overweight\_Level\_II | 165 | 2 | 1.197 |
| Obesity\_Type\_II | 212 | 2 | 1.385 |
| Insufficient\_Weight | 137 | 2 | 0.883 |
| Obesity\_Type\_III | 324 | 2 | 0.167 |
| 总计 | 1376 | 2 | 1.095 |
| CAEC | Normal\_Weight | 196 | 1 | 0.732 | 269.611 | 0.000\*\*\* | 0.031 |
| Overweight\_Level\_I | 148 | 1 | 0.383 |
| Obesity\_Type\_I | 194 | 1 | 0.291 |
| Overweight\_Level\_II | 165 | 1 | 0.323 |
| Obesity\_Type\_II | 212 | 1 | 0.097 |
| Insufficient\_Weight | 137 | 1 | 0.567 |
| Obesity\_Type\_III | 324 | 1 | 0.056 |
| 总计 | 1376 | 1 | 0.426 |
| Weight | Normal\_Weight | 196 | 62 | 9.24 | 1197.39 | 0.000\*\*\* | 0.067 |
| Overweight\_Level\_I | 148 | 75 | 8.56 |
| Obesity\_Type\_I | 194 | 96.468 | 9.668 |
| Overweight\_Level\_II | 165 | 82.523 | 7.54 |
| Obesity\_Type\_II | 212 | 119.066 | 6.095 |
| Insufficient\_Weight | 137 | 50.166 | 5.037 |
| Obesity\_Type\_III | 324 | 112.049 | 15.532 |
| 总计 | 1376 | 90.835 | 27.435 |
| 注：\*\*\*、\*\*、\*分别代表1%、5%、10%的显著性水平 | | | | | | | |

上表展示了Kruskal-Wallis检验的结果，包括中位数、统计量与效应量Cohen's f值。  
● 分析每个分析项的P值是否显著(P<0.05)。  
● 若呈显著性，拒绝原假设，说明两组数据之间存在显著性差异，可以根据中位数±标准差的方式对差异进行分析，反之则表明数据不呈现差异性。  
● Cohen's f值： 表示效应量大小，效应量小、中、大的区分临界点分别是：0.1、0.25和0.40。

**输出结果3：事后多重分析**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 两独立样本 | | 样本量 | | 中位数 | | 统计量 | P | 中位数值差值 | Cohen's d值 |
| 分组项A | 分组项B | 分组项A | 分组项B | 分组项A | 分组项B |
| Weight\_Normal\_Weight | Weight\_Overweight\_Level\_I | 196 | 148 | 62 | 75 | 4740.5 | 0.000\*\*\* | 13 | 1.397 |
| Weight\_Normal\_Weight | Weight\_Obesity\_Type\_I | 196 | 194 | 62 | 96.468 | 110.5 | 0.000\*\*\* | 34.468 | 3.63 |
| Weight\_Normal\_Weight | Weight\_Overweight\_Level\_II | 196 | 165 | 62 | 82.523 | 1852 | 0.000\*\*\* | 20.523 | 2.292 |
| Weight\_Normal\_Weight | Weight\_Obesity\_Type\_II | 196 | 212 | 62 | 119.066 | 0 | 0.000\*\*\* | 57.066 | 7.154 |
| Weight\_Normal\_Weight | Weight\_Insufficient\_Weight | 196 | 137 | 62 | 50.166 | 23665 | 0.000\*\*\* | 11.834 | 1.612 |
| Weight\_Normal\_Weight | Weight\_Obesity\_Type\_III | 196 | 324 | 62 | 112.049 | 0 | 0.000\*\*\* | 50.049 | 4.321 |
| Weight\_Overweight\_Level\_I | Weight\_Obesity\_Type\_I | 148 | 194 | 75 | 96.468 | 1310 | 0.000\*\*\* | 21.468 | 2.37 |
| Weight\_Overweight\_Level\_I | Weight\_Overweight\_Level\_II | 148 | 165 | 75 | 82.523 | 6829.5 | 0.000\*\*\* | 7.523 | 0.869 |
| Weight\_Overweight\_Level\_I | Weight\_Obesity\_Type\_II | 148 | 212 | 75 | 119.066 | 0 | 0.000\*\*\* | 44.066 | 5.972 |
| Weight\_Overweight\_Level\_I | Weight\_Insufficient\_Weight | 148 | 137 | 75 | 50.166 | 20162 | 0.000\*\*\* | 24.834 | 3.536 |
| Weight\_Overweight\_Level\_I | Weight\_Obesity\_Type\_III | 148 | 324 | 75 | 112.049 | 0 | 0.000\*\*\* | 37.049 | 3.34 |
| Weight\_Obesity\_Type\_I | Weight\_Overweight\_Level\_II | 194 | 165 | 96.468 | 82.523 | 28233 | 0.000\*\*\* | 13.945 | 1.694 |
| Weight\_Obesity\_Type\_I | Weight\_Obesity\_Type\_II | 194 | 212 | 96.468 | 119.066 | 1553 | 0.000\*\*\* | 22.598 | 2.653 |
| Weight\_Obesity\_Type\_I | Weight\_Insufficient\_Weight | 194 | 137 | 96.468 | 50.166 | 26578 | 0.000\*\*\* | 46.302 | 5.801 |
| Weight\_Obesity\_Type\_I | Weight\_Obesity\_Type\_III | 194 | 324 | 96.468 | 112.049 | 5554 | 0.000\*\*\* | 15.582 | 1.764 |
| Weight\_Overweight\_Level\_II | Weight\_Obesity\_Type\_II | 165 | 212 | 82.523 | 119.066 | 10 | 0.000\*\*\* | 36.543 | 5.331 |
| Weight\_Overweight\_Level\_II | Weight\_Insufficient\_Weight | 165 | 137 | 82.523 | 50.166 | 22600 | 0.000\*\*\* | 32.357 | 4.912 |
| Weight\_Overweight\_Level\_II | Weight\_Obesity\_Type\_III | 165 | 324 | 82.523 | 112.049 | 0 | 0.000\*\*\* | 29.526 | 2.906 |
| Weight\_Obesity\_Type\_II | Weight\_Insufficient\_Weight | 212 | 137 | 119.066 | 50.166 | 29044 | 0.000\*\*\* | 68.9 | 11.943 |
| Weight\_Obesity\_Type\_II | Weight\_Obesity\_Type\_III | 212 | 324 | 119.066 | 112.049 | 36255.5 | 0.551 | 7.017 | 0.223 |
| Weight\_Insufficient\_Weight | Weight\_Obesity\_Type\_III | 137 | 324 | 50.166 | 112.049 | 0 | 0.000\*\*\* | 61.884 | 5.328 |
| 注：\*\*\*、\*\*、\*分别代表1%、5%、10%的显著性水平 | | | | | | | | | |

上表展示了对分组变量进行两两独立样本MannWhitney U检验的结果，包括样本数、中位数、统计量与效应量Cohen's d值。  
● 分析每个分析项的P值是否显著(P<0.05)。  
● 若呈显著性，拒绝原假设，说明两组数据之间存在显著性差异，可以根据中位数对差异进行分析，反之则表明数据不呈现差异性。