***S4 Table.*** *Means and their standard deviations (S.D.) of the 29 inter-landmark distances that had been reported in previous studies and the height-to-width ratio of the outline of the supraorbital ridge for each group.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Rest** | **Smile** | **P-value (Rest vs. Smile)** |
| **Variable** | **Older** | **Younger** | **P-value****(Older vs. Younger)** | **Older** | **Younger** | **P-value****(Older vs. Younger)** | **Older** | **Younger** |
|  |  | **Mean** | **S.D.** | **Mean** | **S.D.** | **Mean** | **S.D.** | **Mean** | **S.D.** |  |  |  |  |
| X-value | |Ex-Ex| (mm) | 87.8  | 3.3  | 91.7  | 4.0  | 3E-06 | \*\* | 87.9  | 3.4  | 92.6  | 4.2  | 1E-07 | \*\* | 0.788 |  | 6E-04 | \*\* |
| |Ac-Ac| (mm) a) | 39.0  | 2.9  | 36.8  | 2.0  | 6E-06 | \*\* | 41.1  | 3.5  | 40.9  | 2.7  | 0.717 |  | 7E-07 | \*\* | 7E-32 | \*\* |
| |Zy-Zy| (mm) a) | 113.0  | 5.4  | 111.9  | 4.8  | 0.295 |  | 113.3  | 6.0  | 111.2  | 5.1  | 0.067 |  | 0.826 |  | 2E-04 | \*\* |
| |Zy′-Zy′| (mm) a) | 128.4  | 6.0  | 129.1  | 5.2  | 0.49 |  | 128.5  | 5.9  | 128.8  | 5.0  | 0.835 |  | 0.955 |  | 4E-04 | \*\* |
| |Go′-Go′| (mm) a) | 103.6  | 6.6  | 98.4  | 6.6  | 3E-04 | \*\* | 105.8  | 7.4  | 106.7  | 6.7  | 0.543 |  | 0.009 | \* | 9E-21 | \*\* |
| |Ch-Ch| (mm) a) | 49.5  | 3.5  | 46.5  | 4.0  | 4E-04 | \*\* | 53.3  | 4.9  | 58.3  | 5.5  | 1E-05 | \*\* | 7E-05 | \*\* | 8E-37 | \* \* |
| Y-value | |Gla-N| (mm) a) | 22.0  | 6.2  | 23.5  | 6.0  | 0.212 |  | 22.5  | 6.1  | 23.3  | 5.6  | 0.493 |  | 0.158 |  | 0.190 |  |
| |Gla-En| (mm) a) | 28.4  | 6.4  | 28.7  | 6.1  | 0.826 |  | 28.1  | 6.8  | 28.0  | 5.6  | 0.913 |  | 0.526 |  | 0.006 | \* |
| |Gla-Sn| (mm) Total midface height a) | 73.9  | 7.1  | 73.3  | 6.2  | 0.676 |  | 73.2  | 7.1  | 72.8  | 5.8  | 0.753 |  | 0.229 |  | 0.006 | \* |
| |Gla-Zy| (mm)a) | 52.3  | 7.1  | 51.3  | 6.3  | 0.45 |  | 53.9  | 8.1  | 55.3  | 6.7  | 0.356 |  | 0.083 |  | 5E-09 | \*\* |
| |Gla-Prn| (mm)a) | 63.4  | 6.8  | 62.0  | 6.5  | 0.301 |  | 62.8  | 7.1  | 61.3  | 6.1  | 0.254 |  | 0.259 |  | 2E-04 | \*\* |
| |Gla-Ls| (mm)a) | 88.9  | 8.0  | 84.7  | 6.9  | 0.005 | \* | 86.0  | 8.3  | 80.9  | 6.5  | 7E-04 | \*\* | 0.001 | \*\* | 8E-16 | \*\* |
| |Gla-Sto| (mm) Total upper face height a) | 96.3  | 7.7  | 92.2  | 6.6  | 0.005 | \* | 92.7  | 8.5  | 87.4  | 6.4  | 4E-04 | \*\* | 5E-04 | \*\* | 1E-19 | \*\* |
| |Gla-Gn| (mm) Total face height a) | 138.5  | 9.1  | 135.7  | 7.0  | 0.07 |  | 138.6  | 9.2  | 136.2  | 6.6  | 0.112 |  | 0.947 |  | 0.178 |  |
| |N-En| (mm)a) | 6.4  | 1.9  | 5.1  | 1.4  | 1E-04 | \*\* | 5.6  | 1.7  | 4.7  | 1.4  | 0.003 | \* | 0.038 |  | 0.003 | \* |
| |N-Sn| (mm) Midface height a) | 51.9  | 3.5  | 49.8  | 2.8  | 6E-04 | \*\* | 50.7  | 3.4  | 49.5  | 2.8  | 0.05 |  | 0.01 | \* | 0.003 | \* |
| |N-Zy| (mm) a) | 30.3  | 5.0  | 27.7  | 4.6  | 0.009 | \* | 31.4  | 6.3  | 31.9  | 4.9  | 0.626 |  | 0.206 |  | 7E-12 | \*\* |
| |N-Prn| (mm) Nasal bridge length a) | 41.5  | 3.1  | 38.5  | 2.9  | 3E-06 | \*\* | 40.3  | 3.3  | 38.0  | 3.0  | 4E-04 | \*\* | 0.015 |  | 6E-04 | \*\* |
| |N-Ls| (mm) a) | 67.0  | 5.2  | 61.2  | 3.8  | 5E-10 | \*\* | 63.5  | 5.3  | 57.6  | 3.5  | 6E-11 | \*\* | 2E-05 | \*\* | 7E-23 | \*\* |
| |N-Sto| (mm)Upper face height a) | 74.3  | 5.0  | 68.7  | 3.7  | 7E-10 | \*\* | 70.2  | 5.5  | 64.1  | 3.6  | 4E-11 | \*\* | 2E-05 | \*\* | 6E-28 | \*\* |
| |N-Gn| (mm) Face height a) | 116.5  | 6.7  | 112.1  | 5.6  | 5E-04 | \*\* | 116.1  | 6.3  | 112.8  | 5.2  | 0.005 | \* | 0.443 |  | 0.352 |  |
| |Go′-Gn| (mm) Chin height d) | 24.8  | 3.4  | 25.4  | 3.9  | 0.398 |  | 26.5  | 4.0  | 31.4  | 4.6  | 7E-07 | \*\* | 0.004 | \* | 1E-19 | \*\* |
| |Ps-Pi| (mm) Eye height a) | 11.8  | 1.5  | 13.5  | 1.5  | 2E-07 | \*\* | 11.4  | 1.4  | 13.7  | 1.5  | 2E-11 | \*\* | 0.148 |  | 0.320 |  |
| |Sn-Sto| (mm) Maxilla height a) | 22.4  | 2.5  | 18.9  | 2.3  | 7E-11 | \*\* | 19.5  | 3.3  | 14.6  | 2.6  | 2E-14 | \*\* | 2E-06 | \*\* | 5E-39 | \*\* |
| |Sn-Gn| (mm) Lower face height a) | 63.8  | 4.4  | 60.2  | 4.7  | 3E-04 | \*\* | 59.7  | 5.4  | 56.5  | 4.9  | 0.003 | \* | 1E-05 | \*\* | 1E-15 | \*\* |
| |Ls-Sto| (mm) Upper lip vermillion height a) | 7.4  | 1.4  | 7.5  | 1.5  | 0.582 |  | 6.7  | 1.3  | 6.5  | 1.6  | 0.447 |  | 0.025 |  | 9E-10 | \*\* |
| |Sto-Li| (mm) Lower lip vermillion height a) | 8.7  | 1.9  | 9.2  | 1.7  | 0.18 |  | 7.2  | 1.5  | 7.6  | 1.8  | 0.326 |  | 1E-05 | \*\* | 8E-10 | \*\* |
| |Sto-Gn| (mm) Mandible height a) | 41.4  | 3.7  | 41.3  | 4.9  | 0.949 |  | 40.2  | 4.6  | 41.9  | 4.6  | 0.074 |  | 0.017 |  | 0.634 |  |
| Z-value | |Gla-N| (mm) a) | 3.6  | 2.4  | 4.1  | 2.1  | 0.256 |  | 3.2  | 2.2  | 3.7  | 1.9  | 0.222 |  | 0.936 |  | 0.106 |  |

\* P < 0.01; \*\* P < 0.001; a) Farkas and Munro. (1987); b) Sarver (1998); c) Carre et al., 2009; d) Newly defined.

***S4 Table Contd.*** *Means and their standard deviations (S.D.) of the 29 inter-landmark distances that had been reported in previous studies and the height-to-width ratio of the outline of the supraorbital ridge for each group.*

|  |  |  |
| --- | --- | --- |
|  |  | **Smile-Rest** |
| **Variable** | **Older** | **Younger** | **P-value****(Older vs. Younger)** |
|  |  | **Mean** | **S.D.** | **Mean** | **S.D.** |
| X-value | |Ex-Ex| (mm) | 0.1  | 2.4  | 0.9  | 2.7  | 0.129 |  |
| |Ac-Ac| (mm) a) | 2.3  | 2.0  | 4.0  | 2.3  | 3E-04 | \*\* |
| |Zy-Zy| (mm) a) | 0.2  | 4.0  | -2.0  | 5.3  | 0.04 |  |
| |Zy′-Zy′| (mm) a) | 0.0  | 3.8  | -1.8  | 4.9  | 0.059 |  |
| |Go′-Go′| (mm) a) | 2.5  | 4.8  | 7.9  | 6.6  | 6E-05 | \*\* |
| |Ch-Ch| (mm) a) | 4.2  | 5.0  | 12.3  | 6.1  | 1E-09 | \*\* |
| Y-value | |Gla-N| (mm) a) | 0.6  | 2.4  | -0.5  | 3.4  | 0.109 |  |
| |Gla-En| (mm) a) | -0.3  | 2.6  | -1.0  | 3.5  | 0.316 |  |
| |Gla-Sn| (mm) Total midface height a) | -0.8  | 3.5  | -1.3  | 4.5  | 0.586 |  |
| |Gla-Zy| (mm)a) | 1.8  | 5.6  | 3.8  | 5.9  | 0.107 |  |
| |Gla-Prn| (mm)a) | -0.7  | 3.6  | -1.4  | 3.7  | 0.387 |  |
| |Gla-Ls| (mm)a) | -3.4  | 5.2  | -5.0  | 5.2  | 0.148 |  |
| |Gla-Sto| (mm) Total upper face height a) | -4.1  | 5.7  | -6.2  | 5.4  | 0.073 |  |
| |Gla-Gn| (mm) Total face height a) | -0.1  | 5.0  | -0.9  | 6.4  | 0.525 |  |
| |N-En| (mm)a) | -0.9  | 2.3  | -0.6  | 1.8  | 0.348 |  |
| |N-Sn| (mm) Midface height a) | -1.4  | 2.8  | -0.8  | 2.7  | 0.304 |  |
| |N-Zy| (mm) a) | 1.2  | 5.1  | 4.2  | 5.5  | 0.007 | \* |
| |N-Prn| (mm) Nasal bridge length a) | -1.4  | 2.9  | -1.0  | 2.7  | 0.465 |  |
| |N-Ls| (mm) a) | -4.0  | 4.4  | -4.5  | 3.5  | 0.524 |  |
| |N-Sto| (mm)Upper face height a) | -4.7  | 5.0  | -5.7  | 3.7  | 0.245 |  |
| |N-Gn| (mm) Face height a) | -0.6  | 4.6  | -0.5  | 5.3  | 0.889 |  |
| |Go′-Gn| (mm) Chin height d) | 1.9  | 3.3  | 6.1  | 5.4  | 8E-05 | \*\* |
| |Ps-Pi| (mm) Eye height a) | -0.4  | 1.6  | 0.0  | 0.0  | 0.007 | \* |
| |Sn-Sto| (mm) Maxilla height a) | -3.3  | 3.0  | -4.9  | 2.3  | 0.003 | \* |
| |Sn-Gn| (mm) Lower face height a) | -4.7  | 5.0  | -4.7  | 4.9  | 0.976 |  |
| |Ls-Sto| (mm) Upper lip vermillion height a) | -0.7  | 1.6  | -1.2  | 1.7  | 0.173 |  |
| |Sto-Li| (mm) Lower lip vermillion height a) | -1.7  | 1.8  | -1.8  | 2.7  | 0.8 |  |
| |Sto-Gn| (mm) Mandible height a) | -1.4  | 3.0  | 0.2  | 4.4  | 0.065 |  |
| Z-value | |Gla-N| (mm) a) | 0.0  | 0.4  | -0.1  | 0.8  | 0.372 |  |

\* P < 0.01; \*\* P < 0.001; a) Farkas and Munro. (1987); b) Sarver (1998); c) Carre et al., 2009; d) Newly defined