***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