

2012 Tallied-Facial-Soft-Tissue-Depth-Data: SUB-ADULTS ≤11 years

Soft Tissue Depth Measurement	Total Weighted Mean	<i>n</i>	Weighted Mean for <i>s</i> Studies	<i>s</i>	<i>n</i>
Median points					
g-g'	5.0	2350	5.0	1.0	2332
n-n'	8.0	4322	6.5	1.5	2336
mn-mn'	4.0	433	4.0	1.0	415
rhi-rhi'	2.5	1298	2.5	1.5	1280
sn-sn'	10.5	1666	10.0	2.0	1466
mp-mp'	11.5	3671	12.0	2.5	1703
ls-ls'	13.5	1894	13.5	2.0	1694
li-li'	14.5	1712	14.5	2.5	1512
mls-mls'	10.5	2118	10.5	2.5	1900
pg-pg'	10.5	4519	11.0	2.5	2333
gn-gn'	6.5	1062	6.5	2.0	1044
m-m'	7.5	379	7.5	2.5	379
Bilateral points					
mso-mso'	5.0	469	5.0	1.0	469
mio-mio'	6.0	521	6.0	1.5	521
acp-acp'	7.5	410	7.5	2.0	410
go-go'	13.0	657	13.0	3.5	657
zy-zy'	7.5	110	7.5	1.5	110
mr-mr'	18.0	108	18.0	4.0	108
mmb-mmb'	10.5	411	10.5	3.5	411

Soft tissue depth values have been rounded to the nearest 0.5mm.

Measurement points are defined and illustrated in: Stephan and Simpson 2008 Facial soft tissue depths in craniofacial identification (Part II). Journal of Forensic Sciences 53:1273-9.

Total Weighted Mean = weighted mean across all studies in the literature reporting a soft tissue depth mean for the corresponding landmark.

n = sample size used to calculate each weighted mean.

Weighted Mean for *s* Studies = data for investigations that reported standard deviations.

s = weighted standard deviation.

All studies used to generate the T-table should be cited when this T-table is used (see example provided below) and acknowledgements to CRANIOFACIALidentification.com should be given.

Features of the 2012 Sub-adult T-table

At pogonion the sample size increased from 4,285 individuals in 2008 to 4,519 individuals in 2012.

Sixteen of 19 “Total Weighted Mean” measurements did not change from 2008 to 2012 and of the three that did, two did not exceed a rounded difference of 0.5 mm.

The largest raw increase in a mean soft tissue depth was 0.4 mm at sn-sn’ and mls-mls’ under the “Weighted Mean for s Studies”; while the greatest reduction of a mean value was -1.5 mm at m-m’, which occurred under both the “Total Weighted Mean”, and the “Weighted Mean for s Studies”. These small changes support the robust nature of the pooled 2008 data values and the utility of the 2012 T-table as facial soft tissue depth standards.

Updates made to the 2008 version:

1. Summary data from three other published studies have been used to produce the 2012 T-table. They are listed below in order of year published:

Gerasimov MM. Vosstanovlenie lica po cerepu. Moskva: Izdat. Akademii Nauk SSSR, 1955.

Utsuno H, Kageyama T, Deguchi T, Umemura Y, Yoshino M, Nakamura H, et al. Facial soft tissue thickness in skeletal type I Japanese children. *Forensic Science International* 2007;172:137-43.*

Utsuno H, Kageyama T, Uchida K, Yoshino M, Miyazawa H, Inoue K. Facial soft tissue thickness in Japanese children. *Forensic Science International* 2010;199:109.e1-.e6.

* The Utsuno et al. (2010) data completely replace the Utsuno et al. (2005) data; and replace the Utsuno et al. (2007) data except at the go-go’ landmark.

2. Gerasimov’s values were recalculated using the raw data published in his original work (4) and only using individuals aged ≤ 11 years ($n = 15$). Since Gerasimov’s raw data was used, standard deviations have also been calculated and used to generate the T-table.

3. The “No. of Samples” field has been removed from the T-table due to the inconsistent and arbitrary way in which authors have categorized their samples (often by age). Emphasis is now given to the total number of studies used to calculate the T-table (irrespective of the number of subsamples each concerns) and the overall sample size of the pooled results.

4. The “Estimated Minimum” and “Estimated Maximum” fields have been removed to avoid their misuse as precise data ranges. (These fields were originally included to show that some of the data were not normally distributed and, therefore, that their description using arithmetic means was far from ideal.)

Changes at a Glance: 2012 sub-adult T-table compared to the 2008 version

Soft Tissue Depth Measurement	Diff. in the Total Weighted Mean	<i>n</i> Increased by	Diff. in the Weighted Mean for <i>s</i> Studies	<i>Diff. in the s</i>	<i>n</i> Increased by
Median points					
g-g'	0.0	234	0.0	0.0	234
n-n'	0.0	234	-0.5	0.0	234
mn-mn'	0.0	0	0.0	0.0	0
rhi-rhi'	0.0	234	0.0	0.5	234
sn-sn'	0.5	219	0.5	0.0	219
mp-mp'	0.0	0	0.0	0.0	0
ls-ls'	0.0	219	0.0	0.0	219
li-li'	0.0	219	0.0	0.0	219
mls-mls'	0.5	234	0.5	0.5	234
pg-pg'	0.0	234	0.5	0.0	234
gn-gn'	0.0	0	0.0	0.0	0
m-m'	-1.5	219	-1.5	-0.5	219
Bilateral points					
mso-mso'	0.0	0	0.0	0.0	0
mio-mio'	0.0	0	0.0	0.0	0
acp-acp'	0.0	0	0.0	0.0	0
go-go'	0.0	82	0.0	0.0	82
zy-zy'	0.0	0	0.0	0.0	0
mr-mr'	0.0	0	0.0	0.0	0
mmb-mmb'	0.0	0	0.0	0.0	0

Soft tissue depth values have been rounded to the nearest 0.5mm.

Measurement points are defined and illustrated in: Stephan and Simpson 2008 Facial soft tissue depths in craniofacial identification (Part II). Journal of Forensic Sciences 53:1273-9.

Total Weighted Mean = weighted mean across all studies in the literature reporting a soft tissue depth mean for the corresponding landmark.

n = sample size used to calculate each weighted mean.

Weighted Mean for *s* Studies = data for investigations that reported standard deviations.

s = weighted standard deviation.

Citing the 2012 Sub-adult T-table

To correctly cite the T-tables three attributes are required:

1. In-text references to all papers used for the relevant T-table.
2. In-text references to the source of the original published T-table work (12).
3. Written acknowledgements to CRANIOFACIALidentification.com.

The following example meets these requirements:

....mean soft tissue depths of sub-adults from the 2012 Tallied-Facial-Soft-Tissue-Depth-Data were used in this study (11). This T-table uses weighted means and standard deviations to pool data across prior studies (1-10, 13-17) thereby providing soft tissue depths at nineteen commonly measured points. In contrast to single studies, the T-table holds three prime advantages: i) systematic and random biases specific to each investigation/measurement method are pitched against one another to triangulate upon population parameters; ii) the data are based on very large sample sizes; and iii) small differences, relative to measurement errors, are not used to tenuously sub-categorize the data (12).

Reference List 2012 Sub-adult T-table

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11. Stephan CN. Tallied-Facial-Soft-Tissue-Depth-Data. 2012; Available from: www.CRANIOFACIALidentification.com.
12. Stephan CN, Simpson EK. Facial soft tissue depths in craniofacial identification (part II): an analytical review of the published sub-adult data. *J Forensic Sci* 2008;53:1273-9.
13. Subtelny JD. A longitudinal study of soft tissue facial structures and their profile characteristics, defined in relation to underlying skeletal structures. *Am J Orthod* 1959;45:481-507.
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15. Utsuno H, Kageyama T, Uchida K, Yoshino M, Miyazawa H, Inoue K. Facial soft tissue thickness in Japanese children. *Forensic Sci Int* 2010;199:109.e1-.e6.
16. Wilkinson CM. *In vivo* facial tissue depth measurements for White British children. *J Forensic Sci* 2002;47:459-65.
17. Williamson MA, Nawrocki SP, Rathbun TA. Variation in midfacial tissue thickness of African-American children. *J Forensic Sci* 2002;47:25-31.