

TDStats

by CN Stephan, 2012

An R tool for automatic exploratory analysis of facial soft tissue depths and the calculation of enhanced central tendency descriptors.

...for Automating Facial Soft
Tissue Thickness Analyses

Disclosure

The presenter has no trade or commercial interests to disclose.

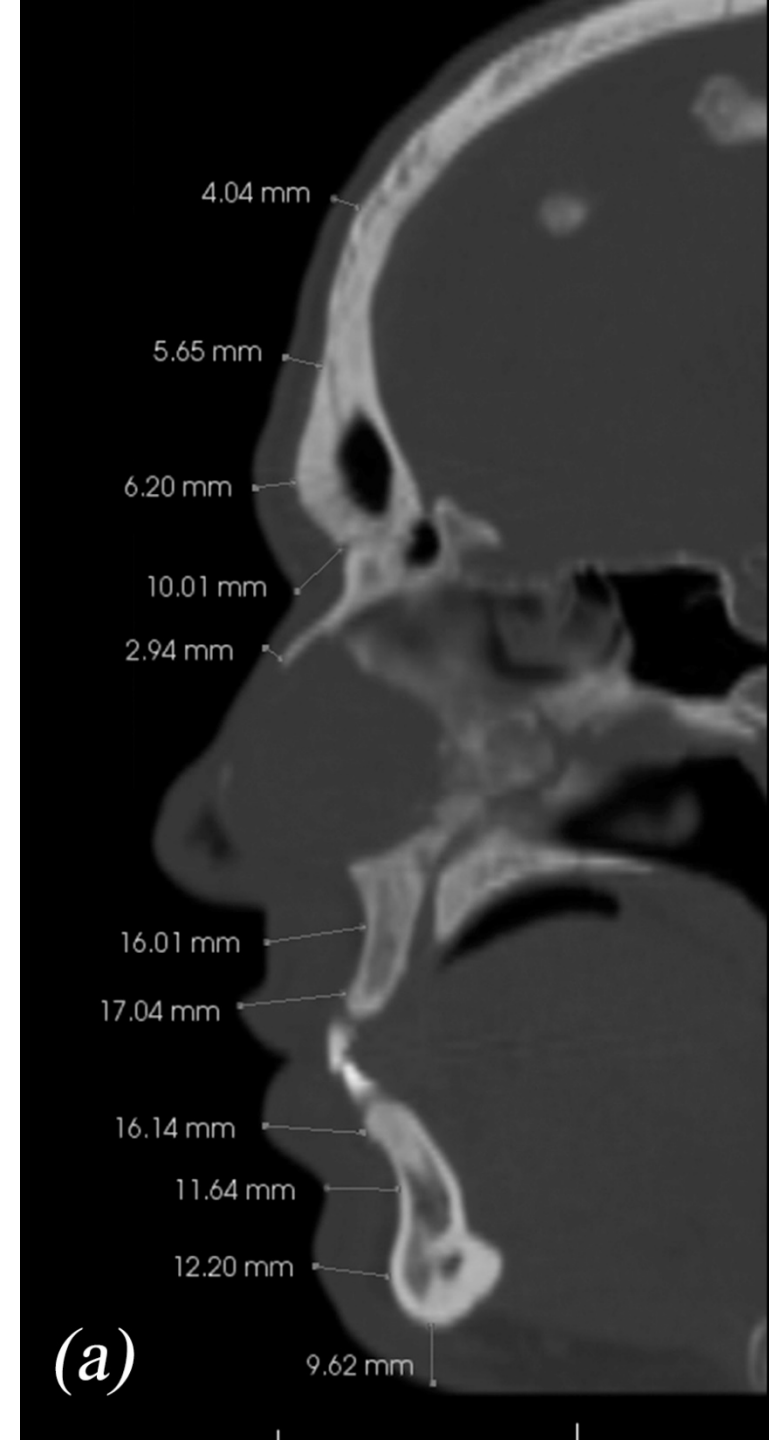
The software discussed in this presentation is written as freely available open source software.

The author does not hold any commercial interests with any of the commercially available software or hardware discussed.

Most facial soft tissue depth studies do the same thing...

1. Collect thicknesses
2. Calculate Means
3. Conduct statistical tests

Image from: Stephan CN, Munn L, Caple J. Facial soft tissue thicknesses: noise, signal and P. Forensic Science International 2015;257:114-22.

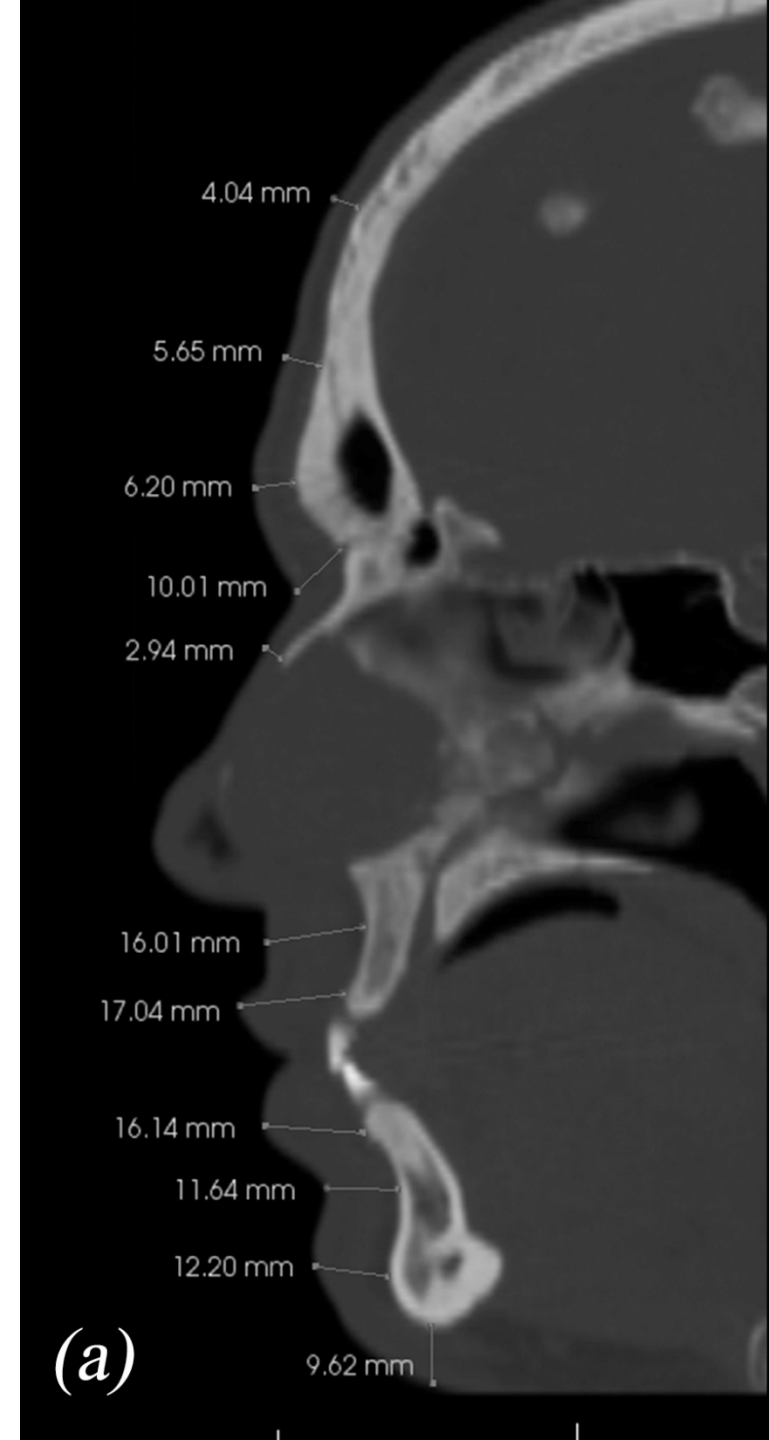


Protocols:

1. Depend on numbers
2. Are repetitive
3. Are tedious
4. May not be conducted appropriately

Classic candidate for computer automation and standardization

Image from: Stephan CN, Munn L, Caple J. Facial soft tissue thicknesses: noise, signal and P. Forensic Science International 2015;257:114-22.



Are Facial Soft Tissue Depths Taken at Standard Landmarks?

- No
- Can they be? Yes.
- ...and we can go one step better.

J Forensic Sci, November 2008, Vol. 53, No. 6
doi: 10.1111/j.1556-4029.2008.00852.x
Available online at: www.blackwell-synergy.com

Carl N. Stephan,¹ Ph.D. and Ellie K. Simpson,² Ph.D.

Facial Soft Tissue Depths in Craniofacial
Identification (Part I): An Analytical Review of
the Published Adult Data*

CRANIOFACIALidentification.com



[Home](#)

[Terms of Use](#)

[Site Updates](#)

[Method Background](#)

[Computer Code & Scripts](#)

[T-Table
\(Tallied FSTD Data\)](#)

[C-Table
\(FSTD Data Store\)](#)

[New Publications](#)

[Core Publications](#)

[Forthcoming Conferences](#)

[SWGANTH Best-Practice](#)

[HuCS-ID Lab](#)

[About the site](#)

Facial-Soft-Tissue-Depth Data Repository (C-Table)

| Study | Year Published | Study Code | Method | Sample | Population | Region | Age | Sex | Opisth | Vertex | Metopion | aglabella | Glabella | Nasion | Mid-nasal | Rhinion | ubnasale | philtrum | super |
|---------------------|----------------|------------|--------|-----------------|------------------|-----------|-----------|-----|--------|--------|----------|-----------|----------|--------|-----------|---------|----------|----------|-------|
| Domorecki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 46 | F | | | | 8.5 | 8.5 | | 4.5 | 22.0 | 17.0 | |
| Domorecki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 52 | F | | | | 3.0 | 3.5 | | 1.5 | 9.5 | 8.5 | |
| Domorecki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 66 | F | | | | 4.0 | 6.5 | | 1.5 | 15.0 | 10.0 | |
| Domorecki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 71 | F | | | | 5.5 | 8.0 | | 2.5 | 12.0 | 8.5 | |
| Domorecki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 74 | F | | | | 9.0 | 9.0 | | 5.0 | 19.0 | 12.0 | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 57 | F | | 2.5 | | 7.0 | 6.0 | | 3.5 | 14.0 | 11.0 | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 64 | F | | | | 5.5 | 7.0 | | 4.0 | 9.0 | 5.5 | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 65 | F | | | | 5.5 | 7.5 | | 6.0 | 2.0 | 11.0 | 9.5 |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 67 | F | | | | 5.0 | 6.0 | | 4.5 | 2.5 | 11.0 | 10.5 |

[Volunteer your raw data!](#)

[C-table contributor list](#)

[Terms of Use](#) (please read prior to opening or downloading the C-Table, or any related TDStats files)

Access the C-table:

[v2017.1 cvs file](#)

[v2014.1 xls file](#)

[v2014.1 cvs file](#)

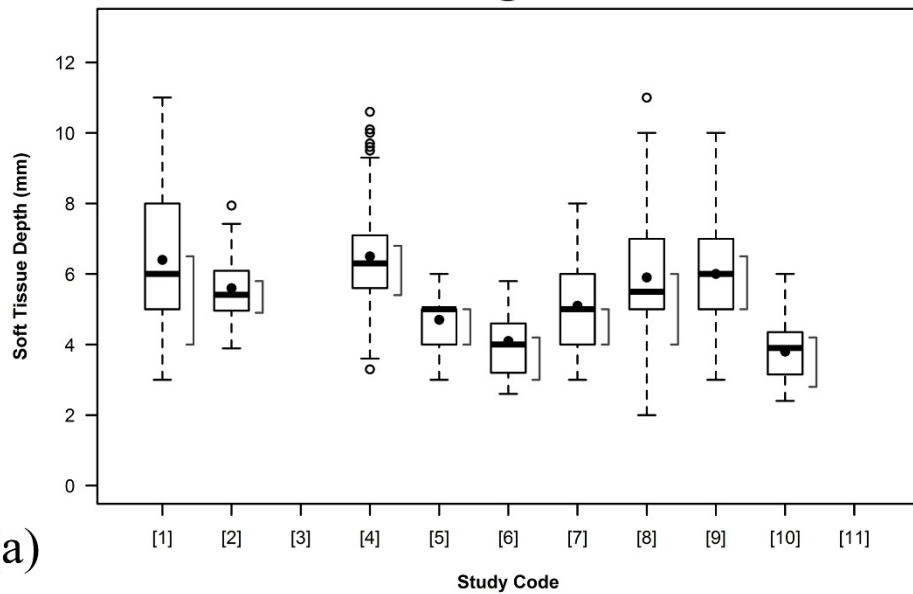
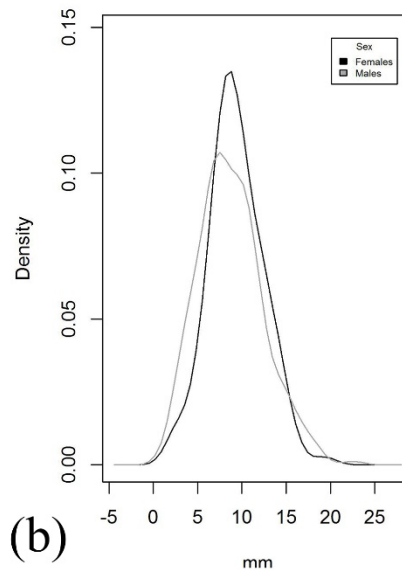
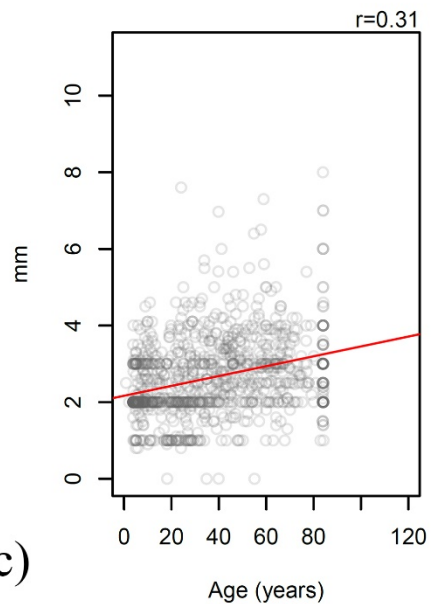
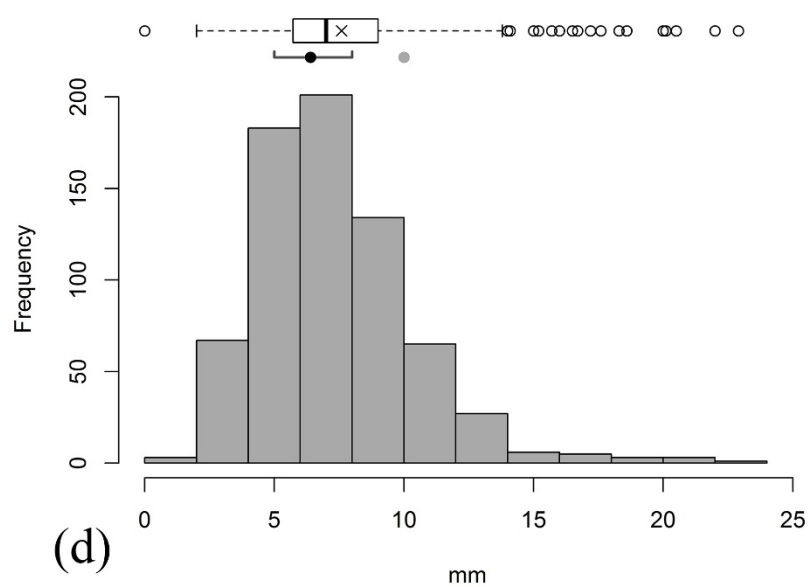
Download the TDStats Output Data Files for the Latest C-Table:

[TDStats_files_for CTable_v2014.1 zip file](#)

OVERVIEW: The C-table represents a centralised online repository of raw soft tissue depth data that is updated on a continuing basis. Currently, the repository holds data for >1,700 individuals, collected at up to 25 standardized craniofacial landmarks.

This data has been voluntarily contributed by principal investigators of prior studies that typically have been published so that

| | | | | | | | | | | | | op-op' |
|---------------------|------|-----------|------------|-----------------|------------------|------------|-----------|-----------|-----|-------------|----------------|--------|
| | | | | | | | | | | | Opisthocranium | Ve |
| Study | Year | Published | Study Code | Method | Sample | Population | Region | Age (yrs) | Sex | Height (mm) | Weight (kg) | op |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 46 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 52 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 66 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 71 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 74 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 77 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 78 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 79 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 80 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 80 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 80 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 87 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 89 | F | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 64 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 67 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 69 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 71 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 72 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 74 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 75 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 75 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 76 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 78 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 78 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 84 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 85 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 88 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 89 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 91 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 91 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 92 | M | | | |
| Domoracki & Stephan | 2006 | Y | 1 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 95 | M | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 52 | F | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 57 | F | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 64 | F | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 65 | F | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 67 | F | | | |
| Simpson & Henneberg | 2002 | Y | 2 | Needle puncture | Embalmed cadaver | Caucasoid | Australia | 76 | F | | | |

g**(a)****L_{zy}****(b)****rhi****(c)****m****(d)**

50

40

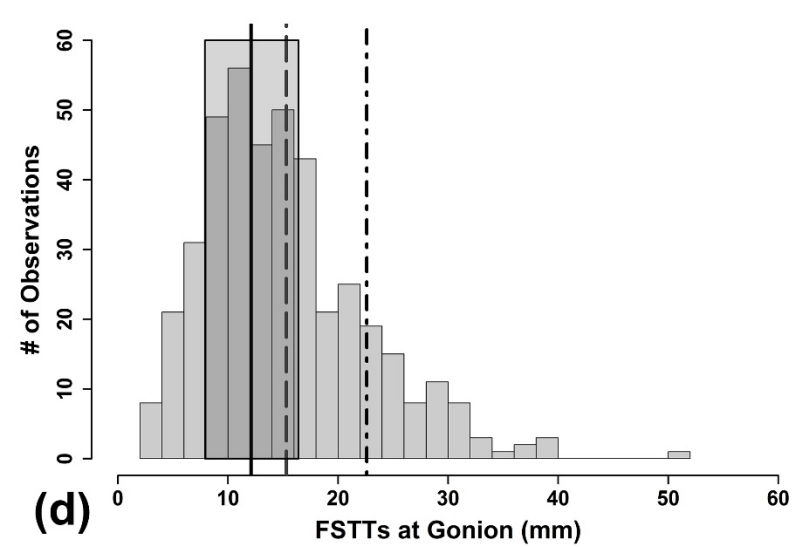
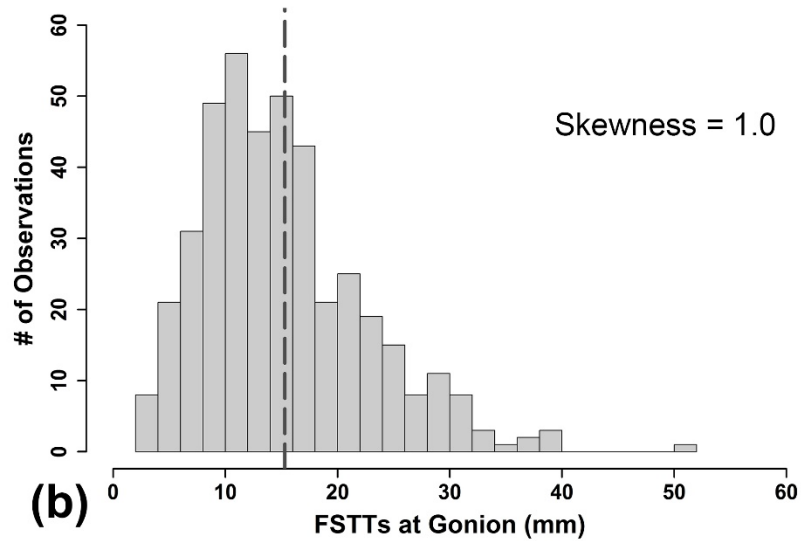
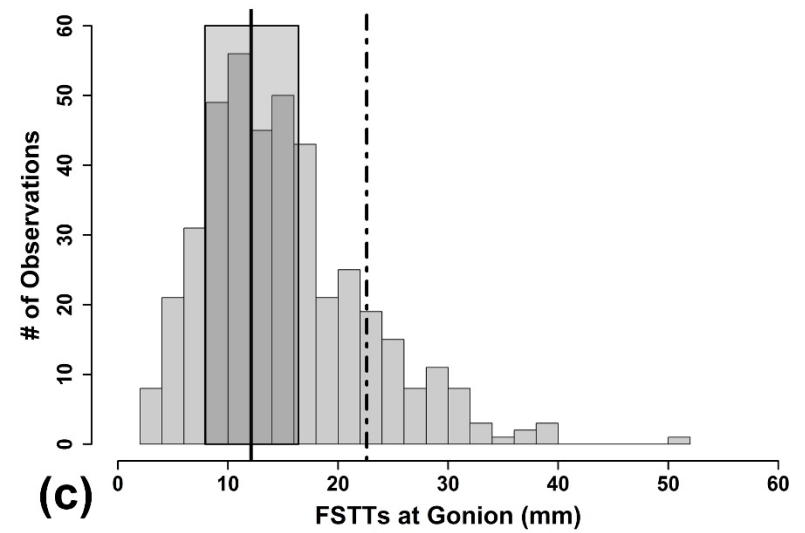
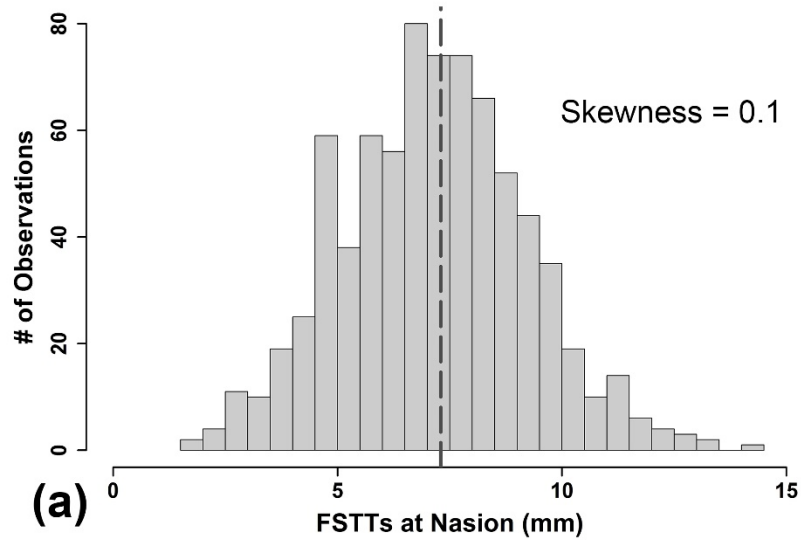
30

20

10

0

(e)**L_{go}**



Research Benefits of Standardization

- Improved inter-study comparisons
- Increased sample sizes
- Improved reliability
- Improved transparency
(how analysis was done is easily discoverable)
- Analysis can be easily scrutinized (free open source)
- Increased comprehensiveness

TDStats
demo...