TCM

THE COMPOSITE METHOD ©

Female

To Estimate Age Using The Composite Method:

1 Find the pubic symphysis for the individual in question, isolate either the left or right os pubis, and locate its "face."

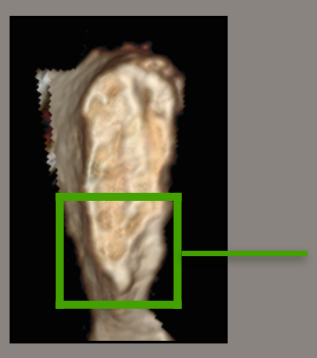
2 Looking at that face directly, locate the Upper Boundary as illustrated (right).

3 Consult the descriptions and images under the "Upper Boundary" heading and choose the column that most closely fits the individual in question.

4 Note the number below that column and reserve it for later.

5 Continue steps 1-4 for each component (Lower Boundary, Outline, Surface Texture, and Topography). Components may be assessed in any order (order preference will not affect outcome).

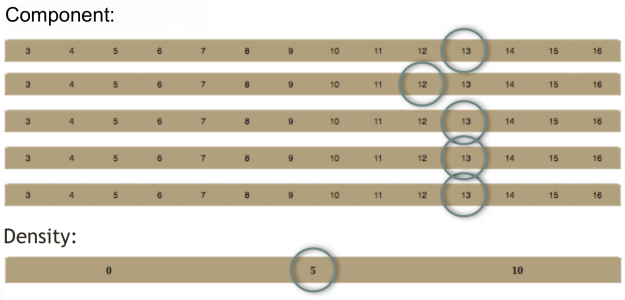
6 To assign the density adjustment, find the axial image in which the symphysis is at its widest and choose the "Density" illustration (top) that best matches it.



7 Once numbers for all 5 components plus the density adjustment have been assigned, add them and retain the sum.

Retain the number listed below each column -

Component:



Density:

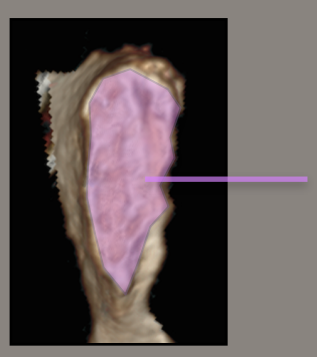
And simply add them: 13 + 12 + 13 +13 +13 + 5 = mean age

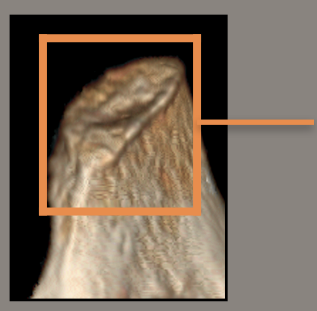
8 Add and subtract half of the population appropriate prediction envelope to either side of the sum, respectively.

9 The range produced is the estimated age for that individual.

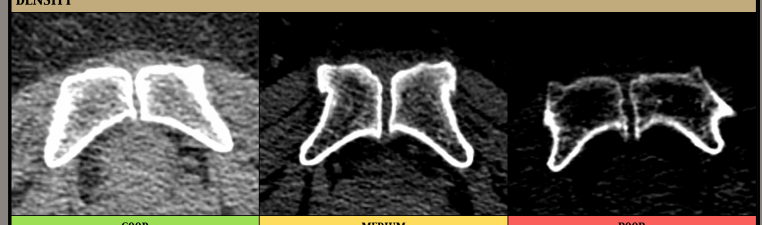
Age may also be estimated by regression
For a free calculator, please visit:

https://tcmtechnique.vercel.app/



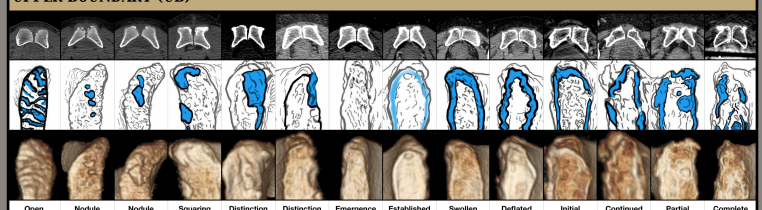


DENSITY



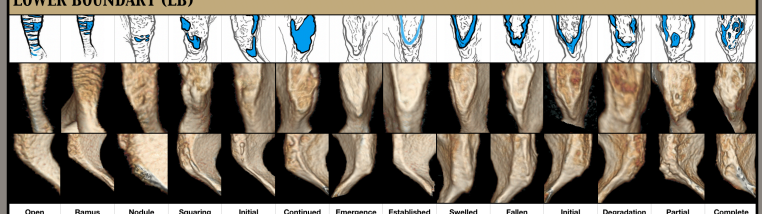
GOOD	MEDIUM	POOR
THICK, BRIGHT, UNBROKEN OUTLINE UNIFORM INTERIOR MORE GREY THAN BLACK (< 25%)	VENTRAL ASPECT HAS NOTICEABLY THINNED AND MAY EXHIBIT BROKEN BORDER OR "PEARLS" OF ACTIVITY "MOTTLED" OR "STRIPED" INTERIOR EQUAL BLACK AND GREY (50% / 50%)	VENTRAL ASPECT HAS THINNED TO THE POINT OF TRANSPARENCY "HOLLOW" BLACKENED INTERIOR MORE BLACK THAN GREY (> 75%)
0	5	10

UPPER BOUNDARY (UB)



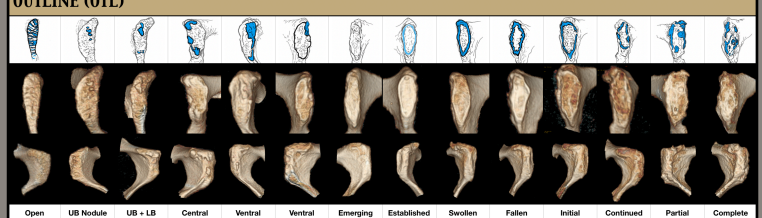
Open Epiphysis	Nodule Formation	Nodule Attachment	Squaring Off	Distinction (Relief)	Distinction (Recess)	Emergence of Outline	Established Outline	Swollen Outline	Deflated Outline	Initial Degradation	Continued Degradation	Partial Obliteration	Complete Obliteration
Open epiphysis stretches upwards toward the tubercle without interruption	Open epiphysis continues unchecked though ossific nodules of varying size have begun to appear in the soft tissue	Ossific nodules have attached to the surface, interrupting the "flow" of the still open epiphysis	Additional nodules form at the mid-face and begin to combine with those at the UB to "fill in" or close the ventral void	As disparate nodules combine, the UB has flattened and is now visually distinct from the tubercle behind	Remodeling at the ventral border takes the form of roughened irregularity and / or a distinctly recessed hiatus with large variations in surface topography	Activity has ceased and facial formation is complete Outline is perceptible when viewed from the front but is not contained or bordered and so "vanishes" when viewed in any other aspect	Outline has thickened to become a clearly established border or "rim" that, while faint, does not disappear when viewed from other aspects	"Rim" has swelled (expanded in height and width), creating the appearance of a cupped or "hooded" central depression *Outline is Thick and Regular*	"Rim" remains raised but, while still intact and unbroken, has collapsed and become irregular, often taking on a ruffled or scalloped appearance *Outline is Thick and Irregular*	"Rim" has thinned considerably and, while mostly uniform, may exhibit occasional breaches or perforations "Rim" may recede up and back towards the tubercle *Outline is Thin and Regular*	Tubercle outgrowths have become increasingly prominent Outline has assumed a patchy, broken-down appearance with several breaches *Outline is Thin and Irregular*	"Rim" has been nearly obliterated by degradation coupled with prolific irregular outgrowth Large, deep macro-pores erode the surface	Outline has been completely obliterated through degradation as well as irregular outgrowth and loss of structural integrity
Ridges and Furrows	Nodule Formation	Nodule Attachment	"Squaring Off"	Distinction	Ventral Hiatus	Vanishing Rim	Shadow Rim	Thick - Regular	Thick - Irregular	Thin - Regular	Thin - Irregular	Erosion	Obliteration
3	4	5	6	7	8	9	10	11	12	13	14	15	16

LOWER BOUNDARY (LB)



Open Epiphysis	Ramus Distinction	Nodule Formation	Squaring Off	Initial Activity	Continued Activity	Emergence of Outline	Established Outline	Swelled Outline	Fallen Outline	Initial Degradation	Degradation Breakdown	Partial Obliteration	Complete Obliteration
Ridges and furrows of the open epiphysis "flow" down the ramus without interruption	Ramus has begun to thicken, containing the ridges and furrows of the open epiphysis to the face	Ossific nodules have formed and attached to the still open epiphysis	Ossific nodules have combined to create a thickened separation between the face and ramus, leading to a "squaring off" the profile	Newly combined nodules begin to swell and move upwards along the ventral border *"✓" shape*	Nodule activity narrows to become more linear and proceeds upwards along the ventral border while the dorsal border flattens *Widened "✓" shape*	Activity has ceased and facial formation is complete Outline is perceptible when viewed directly but is not bordered and so "vanishes" when viewed in any other aspect *"V" shape*	Outline has thickened to become a clearly established border or "rim" that, while faint, does not disappear when viewed from other aspects *"V" shape*	"Rim" has swelled (expanded in height and width), creating a cupped central depression at the LB *"V" shape with cupped depression*	"Rim" has begun to degrade through raised, roughened overgrowth *Swollen, convex "V" shape*	Thinning "rim" has begun to deteriorate and fade while macro-pores become visible *Flat "V" shape*	"Rim" is still present but exists within a mix of macro-pores and overgrowth *Irregular "V" shape*	"Rim" is nearly obliterated at the LB by degradation and erratic outgrowth while macro-pores erode and undermine the surface	"Rim" has been completely obliterated by degradation with erratic outgrowth, macro-pores, and a rough "melted" or "coral like" appearance
No Interuption	Facial Containment	Nodule Formation	Consolidation	Upward Movement	Distinction	Vanishing Rim	Shadow Rim	Cupped Concavity	Swelled Convexity	Flat, Level Face	Erosion	Irregular Outgrowth	Obliteration
3	4	5	6	7	8	9	10	11	12	13	14	15	16

OUTLINE (OTL)



Open Epiphysis	UB Nodule Formation	UB + LB Nodules	Central Nodules	Ventral Unification	Ventral Hiatus	Emerging Border	Established Border	Swollen Border	Fallen Border	Initial Breakdown	Continued Breakdown	Partial Obliteration	Complete Obliteration
Open epiphysis reaches upwards towards the tubercle Epiphysis may appear to be triangular or boomerang in shape Edges appear sharp and "jagged" on both sides *Soft, rounded profile*	Epiphysis remains open while ossific nodules have begun to appear in the soft tissue Edges appear sharp and "jagged" on both sides *Soft, rounded profile with "floating" nodules*	Ossific nodules have fully attached at the UB and have begun forming at the LB Edges remain open but ridges are softening *"Half moon" profile*	Nodules begin to form at the mid-face Edges remain open but ridges and furrows have softened *Profile is beginning to "square off" as nodules condense*	UB, central, and LB nodules merge and travel upwards along the ventral border, forming one large consolidated mass at the ventral UB Dorsal edge is now raised and flattened *Profile continues to "square off"*	Activity is now confined to the mid and upper ventral border, receding to form a notch or "hiatus" at the upper ventral margin LB in its entirety is now flat and level *"Mitten" shape*	Both dorsal ("plateau") and ventral ("rampart") borders have leveled to create a broad, flattened face Outline is perceptible when viewed directly but "vanishes" when viewed in any other aspect *Elongated oval or "D" shape*	Outline has thickened to become a clearly established border or "rim" that, while faint, does not disappear when viewed in other aspects *Outline may present as an "inverted teardrop" shape, but not always*	"Rim" has plumped and rounded to create the appearance of a depressed or "hooded" center, deeper at the UB and LB *"Pointed oval" shape* *Outline is Thick, Regular*	Swelled "rim" has noticeably thinned or deflated, taking on an irregular serpentine or scalloped appearance *"Pointed (but deformed) oval" shape* *Outline is Thick, Irregular*	"Rim" continues to thin and begins to break down, becoming patchy and uneven with occasional breaches in the line *"S" or "pinched oval" shape* *Outline is Thin, Regular*	"Rim," while still discernible, has thinned to the point of atrophy and may be up to 50% absent, replaced by irregular outgrowth and erosion through both micro and macro-pores *Outline is Thin, Irregular*	"Rim" is now mostly indistinct and amorphous, partially obliterated by erratic deterioration and irregular outgrowth Macro-pores erode and undermine the outline *Erosion*	Facial distinction is now obliterated through degradation, irregular outgrowth, and loss of structural integrity Rough pumice or coral-like appearance *Obliteration*
Ridges and Furrows	Nodule Formation	Nodule Attachment	Central Nodules	Ventral Unification	Ventral Hiatus	Vanishing Rim	Shadow Rim	Thick - Regular	Thick - Irregular	Thin - Regular	Thin - Irregular	Erosive Outgrowth	Uniform Destruction
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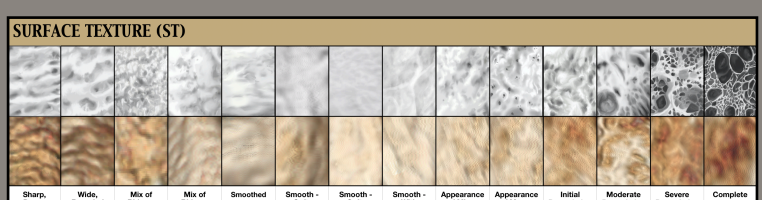
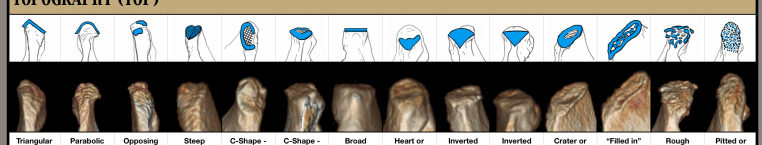
SURFACE TEXTURE (ST)



Sharp, Dense Ridges and Furrows	Wide, Rounded Ridges and Furrows	Mix of Ridges, Furrows, and Nodules - Disorganized	Mix of Ridges, Furrows, and Nodules - Organized	Smoothed Surface Mixed with Shallow Ridges and Furrows	Smooth - Soft, Billowed Surface	Smooth - Soft, Flat Surface	Smooth - With Increasing Granularity	Appearance of Micro Pores	Appearance of Macro Pores	Initial Degradation	Moderate Degradation	Severe Degradation	Complete Degradation
Sharp, thinly peaked and densely packed ridges and furrows present across the entirety of the open epiphysis	Thick, rounded ridges with widening furrows present across the entirety of the open epiphysis	Ridges and furrows are interrupted by erratic nodule activity, creating a "jumbled" or disordered appearance *May be confused for later stages*	Nodule activity begins to "plump up" or "fill in" remaining furrows Ridges and furrows have shallowed but have returned to order	Furrows continue to "fill in," creating an irregular mix of smoothness and gently rolling surface "waves"	Irregularity due to remodeling has ceased to reveal a smooth, ridge-less surface for the first time *Horizontal ridge and furrow orientation has given way to soft, direction-less undulations*	Ridges and furrows have now disappeared and have been replaced by a smooth level surface *Remodeling activity has ceased and the face is complete*	Surface remains soft and smooth but exhibits increasingly visible granularity *"Fine" Sandpaper*	Surface remains smooth but now exhibits a widespread diffusion of micro pores *"Coarse" Sandpaper*	Granularity worsens and macro pores begin to appear below and between already existing micro pores *"Grit" Sandpaper*	Surface now appears abraded due to intensifying granulation Micro and macro pores combine, creating large "sinkholes" that further undermine the surface	Surface is a combination of smoothness and degradation (~50%) as structural integrity erodes from below *Crumbling appearance*	Surface is now more eroded than it is intact (~75%) *Wizened, Desiccated appearance*	Surface is now completely eroded (~100%) *Hollow Pumice or sponge-like appearance*
Sharp Ridges and Furrows	Rounded Ridges and Furrows	Disorder	Filled in Furrows	Gentle Waves	Billowed Surface	Flat Surface	Increasing Granularity	Micropores	Macropores	Sinkholes	~ 50% Degradation	~ 75% Degradation	~ 100% Degradation
3	4	5	6	7	8	9	10	11	12	13	14	15	16

TOPOGRAPHY (TOP)



Triangular Shape (Sharp)	Parabolic Shape (Rounded)	Opposing Nodules (UB + LB)	Steep Central Valley	C-Shape - Sloped Center	C-Shape - Flattened Center	Broad Flat Plateau	Heart or Tulip Shape	Inverted Triangle (Rounded)	Inverted Triangle (Flat)	Crater or Basin Shape	"Filled in" Crater or Basin	Rough Irregular Surface	Pitted or Pocked Convexity
Inferior to superior profile is sharp and triangular in appearance	Inferior to superior profile is convex or parabolic in appearance	Inferior to superior profile is flat or slightly convex with ossific nodule "bookends" at the UB and LB	Inferior to superior profile is gullied with steeply sloping sides	Inferior to superior profile is auricular or "C" shaped Interior surfaces slope downwards towards wide ventral inlet	Inferior to superior profile is "C" or diamond shaped with a flattened interior and narrow or "pinched" ventral inlet	Inferior to superior profile is flat and plateau like in appearance	Inferior to superior profile exhibits either a "heart" or "tulip" shaped LB protrusion Recessed background may be flat or slightly concave	Inferior to superior profile exhibits a rounded inverted triangle at the LB resulting in an "S" or wavelength appearance when viewed against concave recessed background	Inferior to superior profile exhibits a flattened inverted triangle at the LB Recessed concave background	Inferior to superior profile is "crater" or "basin" shaped with interior surfaces sloping or funneling downwards to create a wide central concavity *Best viewed at 3/4 oblique angle*	Inferior to superior profile is "crater" or "basin" shaped with irregularly "filled in" center *Best viewed at 3/4 oblique angle*	Inferior to superior profile has flattened and is rough and irregular with a mix of erratic outgrowths and pitting	Inferior to superior profile is convex due to erosion of both ventral and dorsal borders Face is porous, pitted, and amorphous
Triangle (Sharp)	Parabola (Rounded)	Opposing Nodules	V-Shaped Valley	C-Shaped, Sloped Interior	C-Shaped, Flattened Interior	Flat, Plateau like Surface	Heart or Tulip Shape	S-Shape, High Rounded Curve	S-Shape, Low Flattened Curve	Empty Crater or Basin Shape	Filled In Crater or Basin Shape	Rough Irregular Surface (Flat)	Rough Irregular Surface (Convex)
3	4	5	6	7	8	9	10	11	12	13	14	15	16