

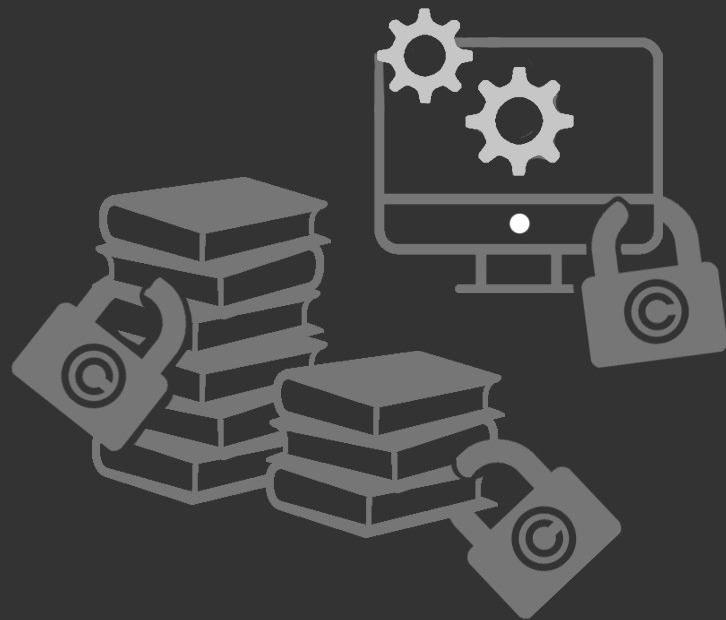


EDUCATION

is a PUBLIC SERVICE
and a HUMAN RIGHT



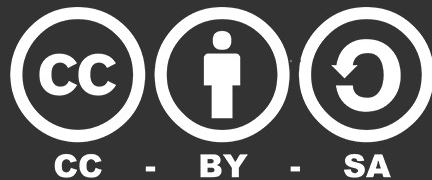
BUT

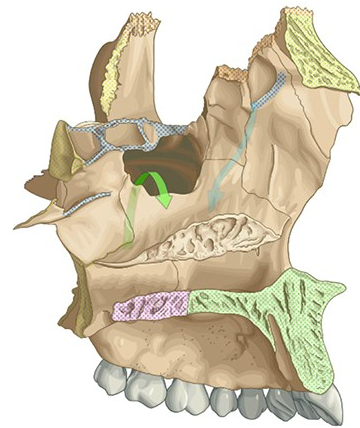
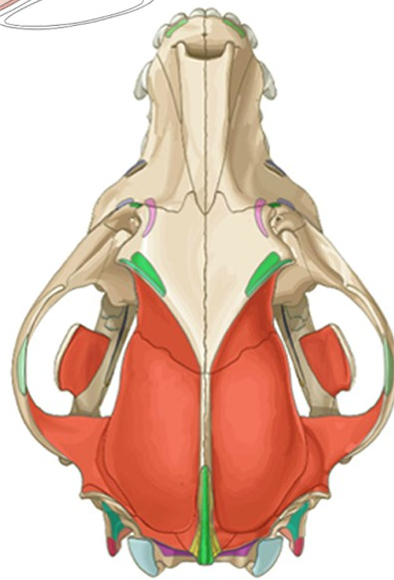
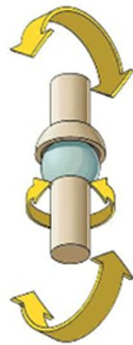
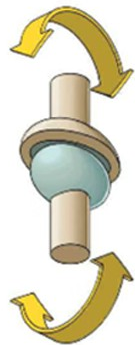
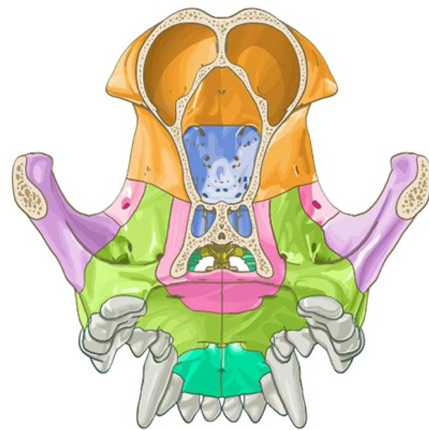
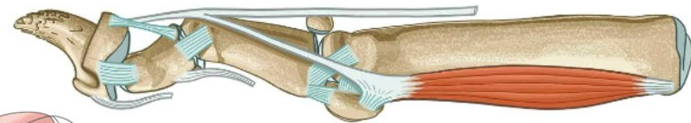
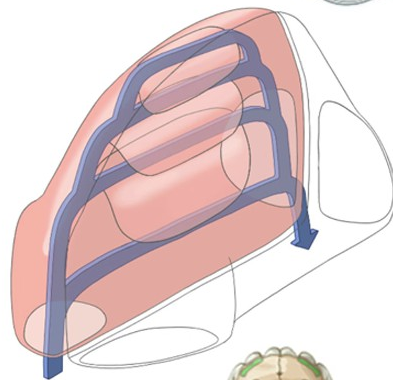
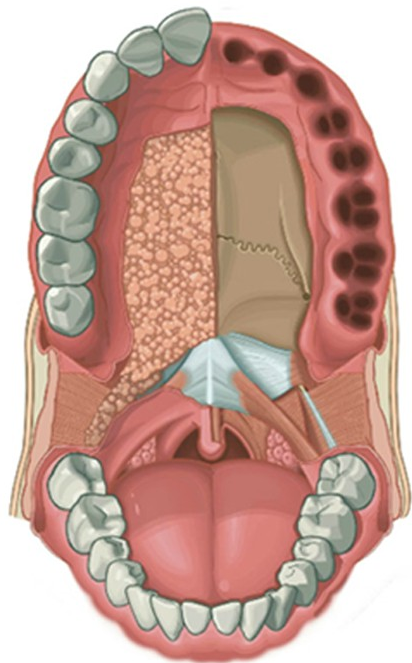
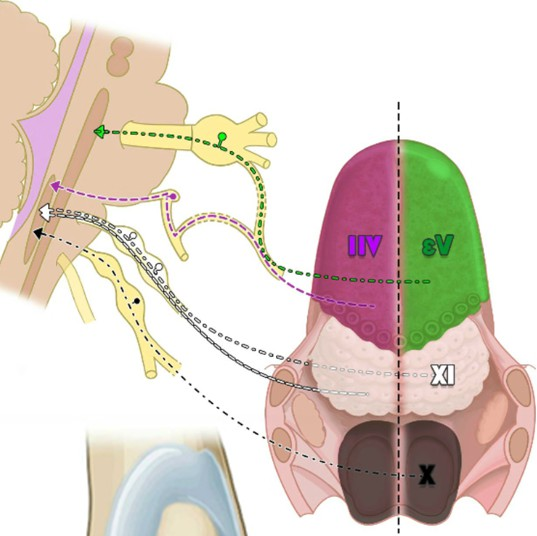


the **SCIENTIFIC EDITIONS**
are PRIVATELY OWNED

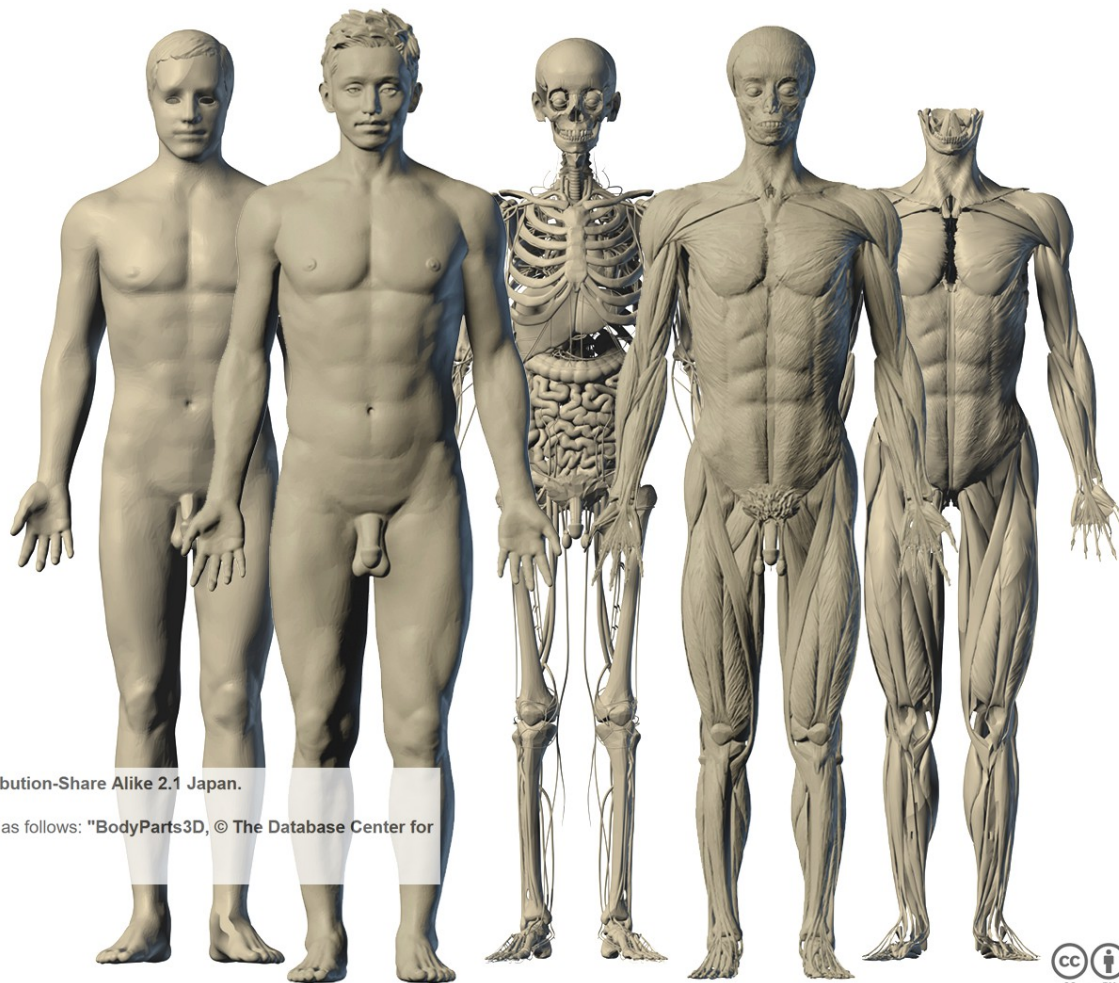


**PUBLIC MONEY
FOR
PUBLIC KNOWLEDGE**



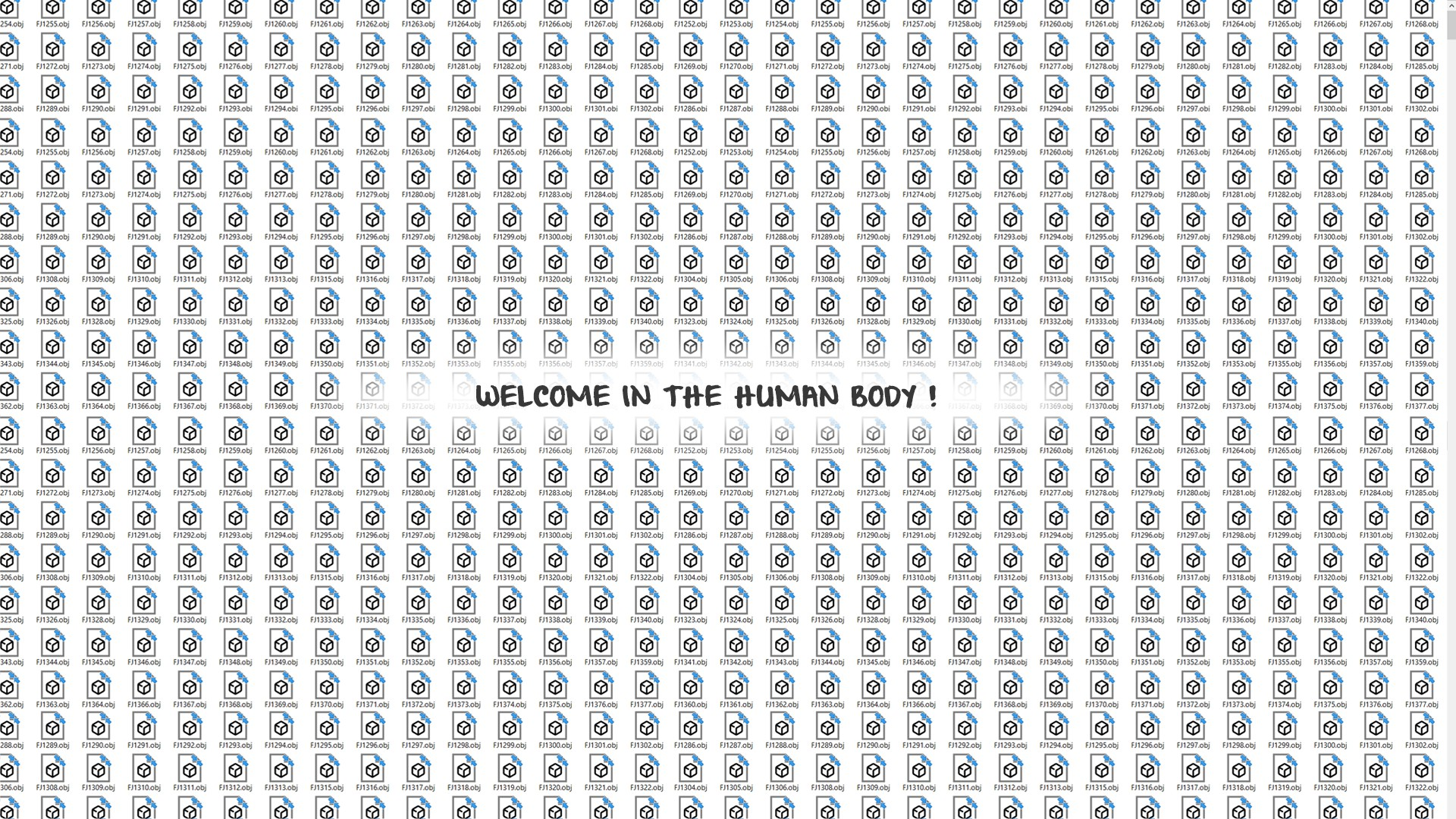


BODYPARTS3D



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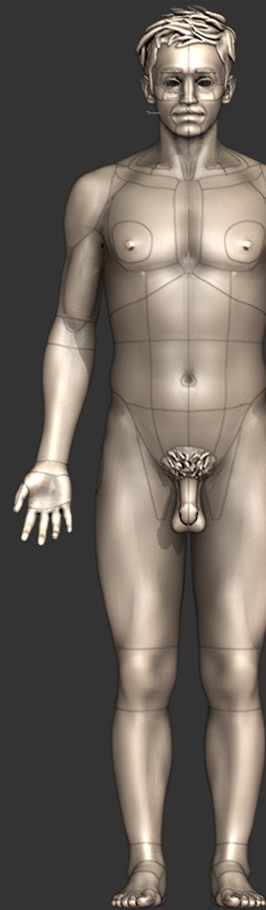
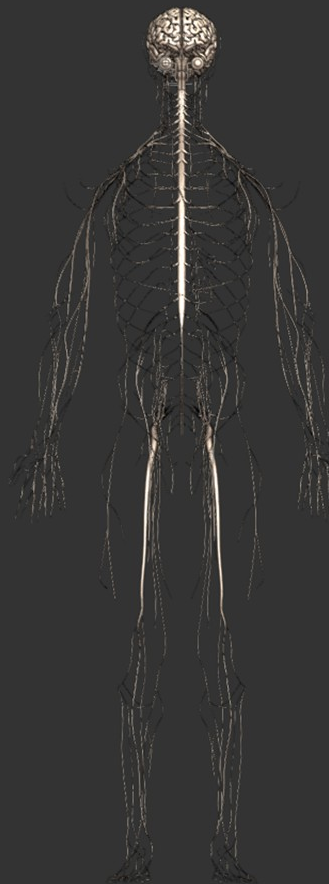
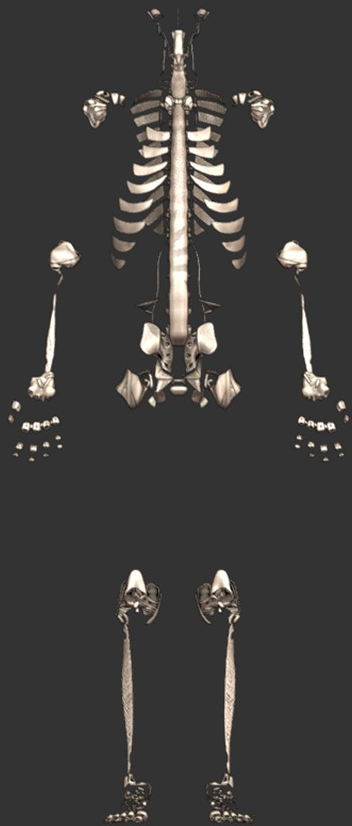
TA2

Terminologia
Anatomica
2nd edition (2019)

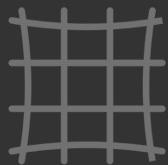
- ☐ Human body
 - ☐ Parts of human body
 - ☐ Regions of human body
 - ☐ Musculoskeletal systems
 - ☐ Skeletal system
 - ☐ Axial skeleton
 - ☐ Appendicular skeleton
 - ☐ Bones
 - ☐ Cranium
 - ☐ Extracranial bones of head
 - ☐ Auditory ossicles
 - ☐ Teeth
 - ☐ Maxillary dental arch
 - ☐ Mandibular dental arch
 - ☐ Diastema
 - ☐ Anterior teeth
 - ☐ Posterior teeth
 - ☐ Premolar tooth



- ☐ Scene Collection
 - ☐ 1: Skeletal system +99 +99 ☒ ☒
 - ☐ 2: Muscular insertions +99 ☒ ☐
 - ☐ 3: Joints +99 +99 ☒ ☐
 - ☐ 4: Muscular system +99 +99 ☒ ☐
 - ☐ 5: Cardiovascular system 60 +99 43 ☒ ☐
 - ☐ 6: Lymphoid organs +99 56 ☒ ☐
 - ☐ 7: Nervous system & Sense organs +99 +99 +99 ☒ ☐
 - ☐ 8: Visceral systems +99 43 +99 ☒ ☐
 - ☐ 9: Regions of human body +99 44 ☒ ☐
 - ☐ Reference lines, reference planes, movements ☒ ☐
 - ☐ Cross section planes 3 ☒ ☐
 - ☐ Bonus collection
 - ☐ Skeletal system 15 ☐ ☐
 - ☐ Muscular insertions 2 ☐ ☐
 - ☐ Arthrology 8 ☐ ☐
 - ☐ Muscular system 14 ☐ ☐

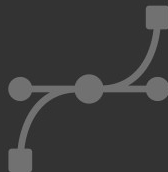


REDUCING the FILE SIZE



REMESHING

- Quick retopo
- Instant meshes
- Best compromise



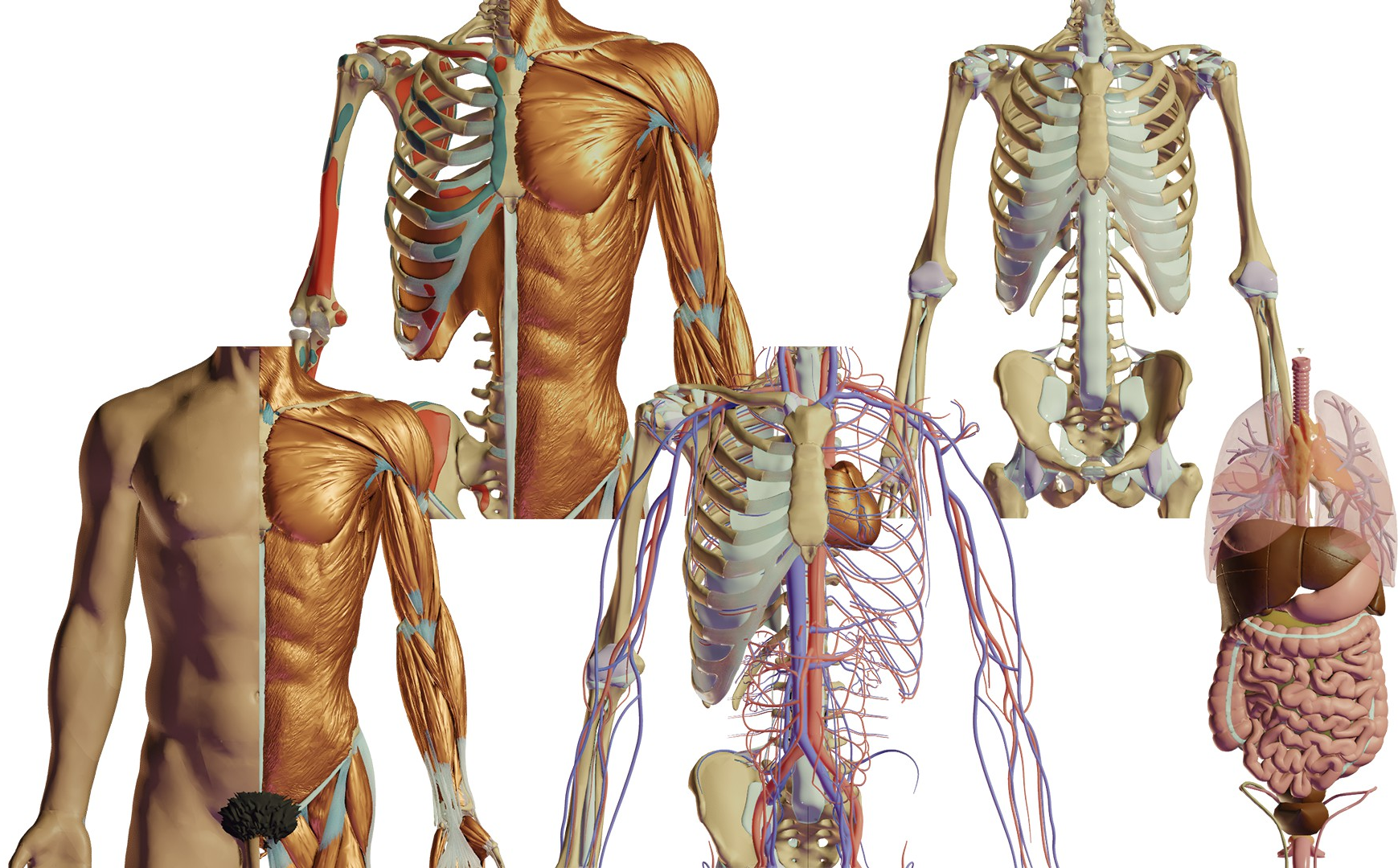
VESSELS AS CURVES

- Lighter
- Easy edition
- Bevel for volume



INSTANCING

- Linked-Duplicate
- Symmetrize
- Edit both sides

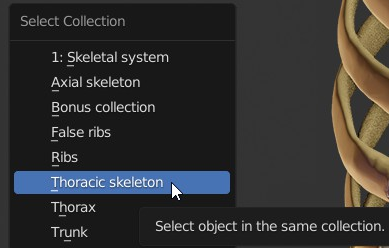


A USER-FRIENDLY
ANATOMY VISUALIZER

COLLECTIONS

RIGHT MOUSE BUTTON

gives access to
all the collections



TAKE A PICTURE



PARENT

NO MESH

SELECTABLE

SCENE COLLECTION

SCALE

CHILD

ORTHOGRAPHIC

NOT SELECTABLE

HIDDEN IN OUTLINER

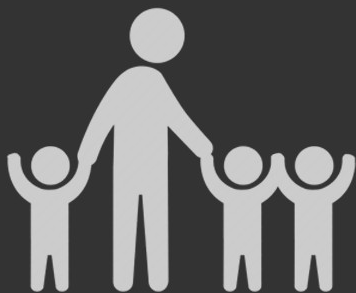
ORTHOGRAPHIC SCALE

DRIVES

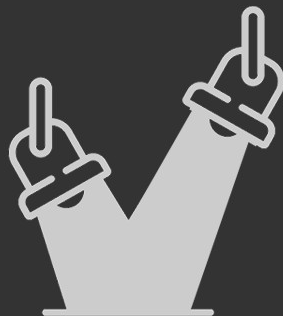




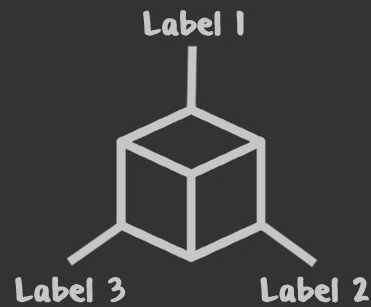
HIDE CHILDREN



LIGHTS ON



LABELS



Translated label



- ▽ Translated name.r ➤ = THE OBJECT
 - ▽ English name
- a Translated Label.t ➤ = THE LABEL**
 - ↻ English label
- ▽ Translated label.j ➤ = THE LINE
 - ▽ English label.j

Re-create the TERMINOLOGIA ANATOMICA 2 from a LOCKED .PDF

2803	Processus glenoideus glandulae parotideae		Glenoid process of parotid gland	Glenoid process of parotid gland		Processus retromandibularis
2804	Processus pterygoideus glandulae parotideae		Pterygoid process of parotid gland	Pterygoid process of parotid gland		
2805	Ductus parotideus		Parotid duct	Parotid duct		Ductus parotidicus; Ductus Stenonis; Stensen's duct
2806	(Glandula parotidea accessoria)		(Accessory parotid gland)	(Accessory parotid gland)	Socia parotidis	Glandula parotis accessoria
2807	Glandula sublingualis		Sublingual gland	Sublingual gland		Gland of Rivinus
2808	Ductus sublingualis major		Major sublingual duct	Major sublingual duct		Bartholin's duct
2809	Ductus sublinguales minores		Minor sublingual ducts	Minor sublingual ducts		Ducts of Rivinus
2810	Glandula submandibularis		Submandibular gland	Submandibular gland		Glandula submaxillaris; Submaxillary gland Endnote 413
2811	Ductus submandibularis		Submandibular duct	Submandibular duct	Submaxillary duct	Ductus submaxillaris; Ductus Whartoni; Wharton's duct
2812	<i>Glandulae salivariae minores</i>		<i>Minor salivary glands</i>	<i>Minor salivary glands</i>		
2813	Glandulae labiales		Labial glands	Labial glands		

... to a SPREADSHEET with 3 more languages

FAI	ENG	DEU	2500	Extensor digitorum		Extensor digitorum	%Musculus extensor digitorum%M	Extenseur des doigts
FAI	ENG	FAI	2501	Intertendinous connections		Conexus intertendinei	%Connexus intertendinei%Junctura	Connections intertendineuses
FAI	ENG	FAI	2502	Extensor expansion of hand	%Dorsal digital expansion of hand	Aponeurosis extensoria manus		Aponévrose des extenseurs de la main
FAI	ENG	FAI	2503	Extensor hood		Cucullus extensorius		Capot extenseur
FAI	ENG	FAI	2504	Central band of extensor expansion of hand		Fasciculus centralis aponeurosis extensoriae manus		Faisceau central de l'aponévros des extenseurs de la main
FAI	ENG	FAI	2505	Collateral bands of extensor expansion of hand		Fasciculi collaterales aponeurosis extensoriae manus		Faisceau collatéral de l'aponévrose des ext. de la main
FAI	ENG	FAI	2506	Extensor digiti minimi		Extensor digiti minimi	%Musculus extensor digiti minimi%	Extenseur du petit doigt
FAI	ENG	FAI	2507	Extensor carpi ulnaris		Extensor ulnaris carpi	%Musculus extensor carpi ulnaris	Extenseur ulnaire du carpe
FAI	ENG	FAI	2508	Humeral head of extensor carpi ulnaris		Caput humerale extensoris ulnaris carpi		Chef huméral de l'extenseur ulnaire du carpe
FAI	ENG	FAI	2509	Ulnar head of extensor carpi ulnaris		Caput ulnare extensoris ulnaris carpi		Chef ulnaire de l'extenseur ulnaire du carpe
FAI	ENG	FAI	2510	Anconeus muscle		Musculus anconeus	%Musculus anconaeus	Muscle anconé
FAI	ENG	FAI	2511	Deep part of posterior compartment of forearm		Pars profunda compartimenti posterioris antebrachii		Partie profonde du compartiment postérieur de l'avant-bras
FAI	ENG	FAI	2512	Supinator		Supinator	%Musculus supinator	Supinateur
FAI	ENG	FAI	2513	Humeral head of supinator		Caput humerale supinatoris		Chef huméral du court supinateur
FAI	ENG	FAI	2514	Ulnar head of supinator		Caput ulnare supinatoris		Chef ulnaire du court supinateur
FAI	ENG	FAI	2515	Extensor indicis		Extensor indicis	%Musculus extensor indicis%Musc	Muscle extenseur de l'index
FAI	ENG	FAI	2516	Extensor pollicis longus		Extensor longus pollicis	%Musculus extensor pollicis longus	Long extenseur du pouce

The TRANSLATIONS are stored in the .blend

View Text Edit Select Format Templates Translations

Mucosa of tympanic cavity;Tunica mucosa cavitatis tympani;Muqueuse de la cavité tympanique;Mucosa de la cavidad timpánica;Mucosa da cavidade timpânica
Tegmental wall of tympanic cavity;Paries tegmentalis cavitatis tympani;Paroi tegmentale de la cavité tympanique;Pared tegmental de la cavidad timpánica;Pared
Jugular wall of tympanic cavity;Paries jugularis cavitatis tympani;Paroi jugulaire de la cavité tympanique;Pared yugular de la cavidad timpánica;Pared
Styloid prominence;Prominentia styloidea;Proéminence styloïde;Prominencia estiloide;Proeminência estilóide
Tympanic cells;Cellulae tympanicae;Cellules tympaniques;Células timpánicas;Células timpânicas
Carotid wall of tympanic cavity;Paries caroticus cavitatis tympani;Paroi carotide de la cavité tympanique;Pared carotídea de la cavidad timpánica;Pared
Tympanic opening of auditory tube;Ostium tympanicum tubae auditivae;Ouverture tympanique de la trompe auditive;Apertura timpánica del tubo auditivo;Abertura
Labyrinthine wall of tympanic cavity;Paries labyrinthicus cavitatis tympani;Paroi labyrinthique de la cavité tympanique;Pared laberíntica de la cavidad timpá
Vestibular window;Fenestra vestibuli;Fenêtre vestibulaire;Ventana vestibular;Janela vestibular
Fossa of vestibular window;Fossula fenestrae vestibuli;Fosse de la fenêtre vestibulaire;Fosa de la ventana vestibular;Fossa da janela vestibular
Promontory of tympanic cavity;Promontorium tympani;Promontoire de la cavité tympanique;Promontorio de la cavidad timpánica;Promontório da cavidade timpânica
Groove of promontory;Sulcus promontorii;Sillon du promontoire;Surco del promontorio;Sulco do promontório
Subiculum of promontory;Subiculum promontorii;Subiculum du promontoire;Subículo del promontorio;Subículo do promontório
Ponticle of promontory;Ponticulus promontorii;Ponticule du promontoire;Pontículo del promontorio;Pontículo do promontório
Sinus tympani;Sinus tympani;Sinus tympanique;Seno timpánico;Seio do tímpano
Cochlear window;Fenestra cochleae;Fenêtre cochléaire;Ventana coclear;Janela coclear
Secondary tympanic membrane;Membrana tympanica secundaria;Membrane tympanique secondaire;Membrana timpánica secundaria;Membrana timpânica secundária
Fossa of cochlear window;Fossula fenestrae cochleae;Fosse de la fenêtre cochléaire;Fosa de la ventana coclear;Fossa da janela coclear
Crest of cochlear window;Crista fenestrae cochleae;Crête de la fenêtre cochléaire;Cresta de la ventana coclear;Crista da janela coclear
Processus cochleariformis;Processus cochleariformis;Processus cochléariforme;Processo cochleariformo;Processus cochleariformis
Mastoid wall of tympanic cavity;Paries mastoidei cavitatis tympani;Paroi mastoïde de la cavité du tympan;Pared mastoidea de la cavidad timpánica;Pared
Aditus to mastoid antrum;Aditus antri mastoidei;Aditus vers l'antre mastoïde;Adito del antro mastoideo;Ádito ao antro mastóide
Prominence of lateral semicircular canal;Prominentia canalis semicircularis lateralis;Proéminence du canal semicirculaire latéral;Prominencia del canal semic
Prominence of facial canal;Prominentia canalis facialis;Proéminence du canal facial;Prominencia del canal facial;Proeminência do canal facial
Pyramidal eminence;Eminentia pyramidalis;Eminence pyramidale;Eminencia piramidal;Eminência piramidal
Fossa of incus;Fossa incudis;Fosse de l'enclume;Fosa del yunque;Fossa de bigorna
Posterior sinus;Sinus posterior;Sinus postérieur;Seno posterior;Seio posterior
Tympanic aperture of posterior tympanic canaliculus;Apertura tympanica canaliculi tympanici posterioris;Ouverture tympanique des canalicules tympaniques post
Membranous wall of tympanic cavity;Paries membranaceus cavitatis tympani;Paroi membraneuse de la cavité tympanique;Pared membranosa de la cavidad timpánica;P
Posterior fold of malleus;Plica mallearis posterior;Pli postérieur du marteau;Pliegue posterior del martillo;Dobra posterior do martelo
Anterior fold of malleus;Plica mallearis anterior;Pli antérieur du marteau;Pliegue anterior del martillo;Dobra anterior do martelo
Fold of chorda tympani;Plica chordae tympani;Pli de la corde du tympan;Pliegue de la cuerda del tímpano;Dobra de corda do tímpano



VERTEBRAL COLUMN

The vertebral column, also known as the backbone or spine, is part of the axial skeleton.

The vertebral column is the defining characteristic of a vertebrate in which the notochord (a flexible rod of uniform composition) found in all chordates has been replaced by a segmented series of bone: vertebrae separated by intervertebral discs.

The vertebral column houses the spinal canal, a cavity that encloses and protects the spinal cord.

There are about 50,000 species of animals that have a vertebral column.

The human vertebral column is one of the most-studied examples.

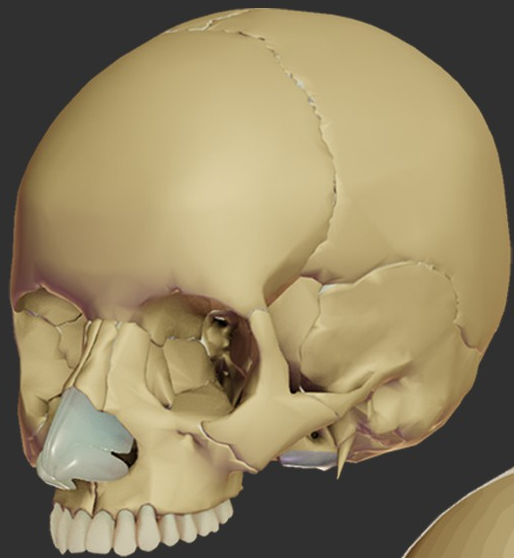
== Structure ==

The number of vertebrae in a region can vary but overall the number remains the same.

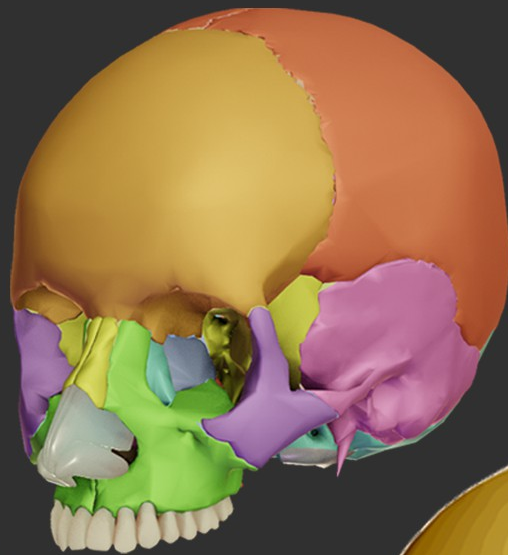
In a human's vertebral column, there are normally thirty-three vertebrae.

The upper 24 pre-sacral vertebrae are articulating and separated from each other by intervertebral discs, and the lower nine are fused in adults, five in the sacrum and four in the coccyx, or tailbone.

The articulating vertebrae are named according to their region of the spine.



KEY COLORS



COMIC
SHADER

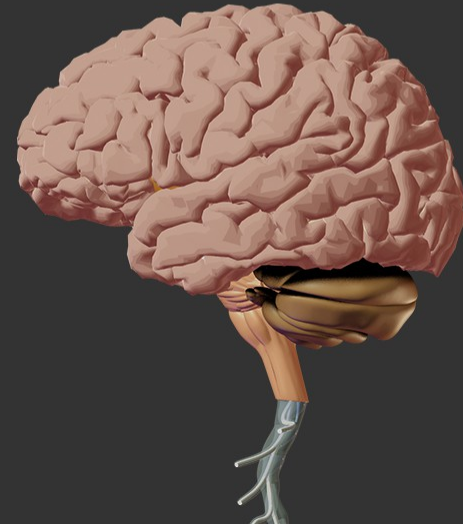
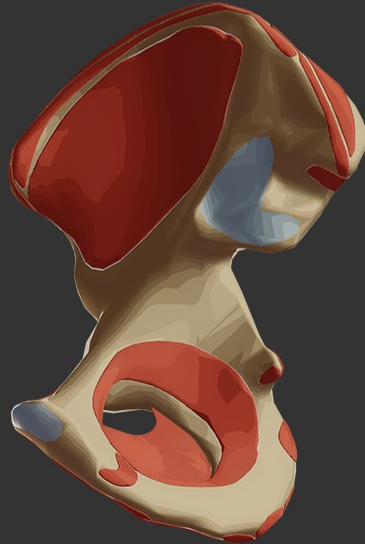
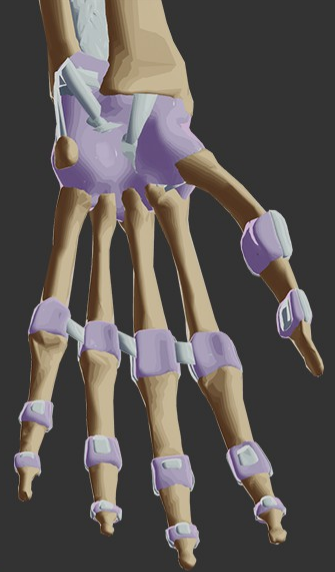
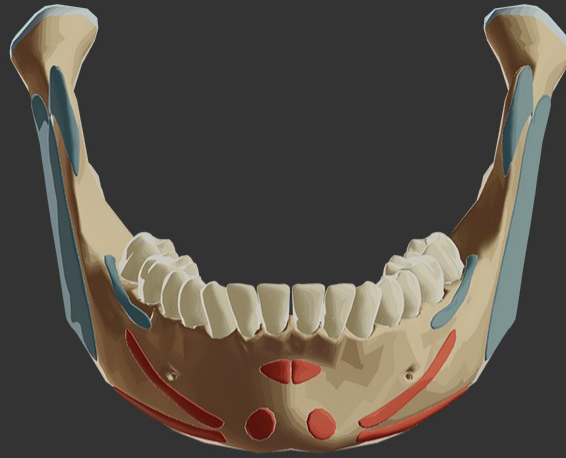
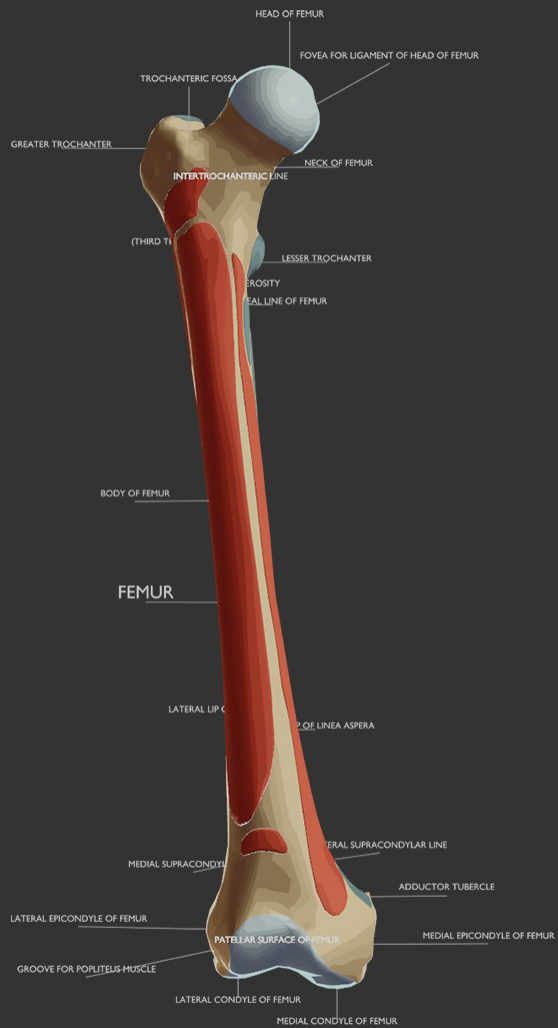


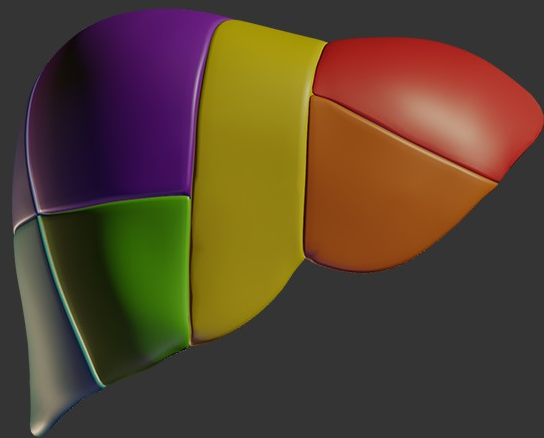
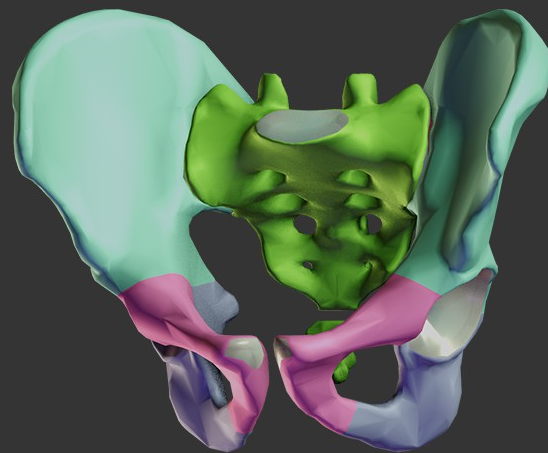
COMIC
SHADER



KEY COLORS







Cross-Sections



▼ Cross section

Active:

X	Y	Z
↔	↔	↔

Layers:

1: Skeletal system

X	Y	Z
↔	↔	↔

2: Muscular insertions

X	Y	Z
↔	↔	↔

3: Joints

X	Y	Z
↔	↔	↔

4: Muscular system

X	Y	Z
↔	↔	↔

5: Cardiovascular system

X	Y	Z
↔	↔	↔

7: Nervous ...ense organs

X	Y	Z
↔	↔	↔

8: Visceral systems

X	Y	Z
↔	↔	↔

9: Regions of human bod

X	Y	Z
↔	↔	↔

Reference li... movements

X	Y	Z
↔	↔	↔

GROUP LABELS

MUSCULAR SYSTEM

SCAPULOHUMERAL MUSCLES

DELTOID MUSCLE
ROTATOR CUFF MUSCLES

ANTERIOR COMPARTMENT OF ARM

BICEPS BRACHII MUSCLE

POSTERIOR COMPARTMENT OF ARM

TRICEPS BRACHII MUSCLE

MUSCULAR SYSTEM OF UPPER LIMB

MUSCLES OF UPPER LIMB

FASCIAE OF UPPER LIMB

POSTERIOR COMPARTMENT OF FOREARM

SUPERFICIAL PART OF POSTERIOR COMPARTMENT OF FOREARM

DEEP PART OF POSTERIOR COMPARTMENT OF FOREARM

ANTERIOR COMPARTMENT OF FOREARM

SUPERFICIAL PART OF ANTERIOR COMPARTMENT OF FOREARM

DEEP PART OF ANTERIOR COMPARTMENT OF FOREARM

BURSAE OF UPPER LIMB

TENDON SHEATHS OF UPPER LIMB

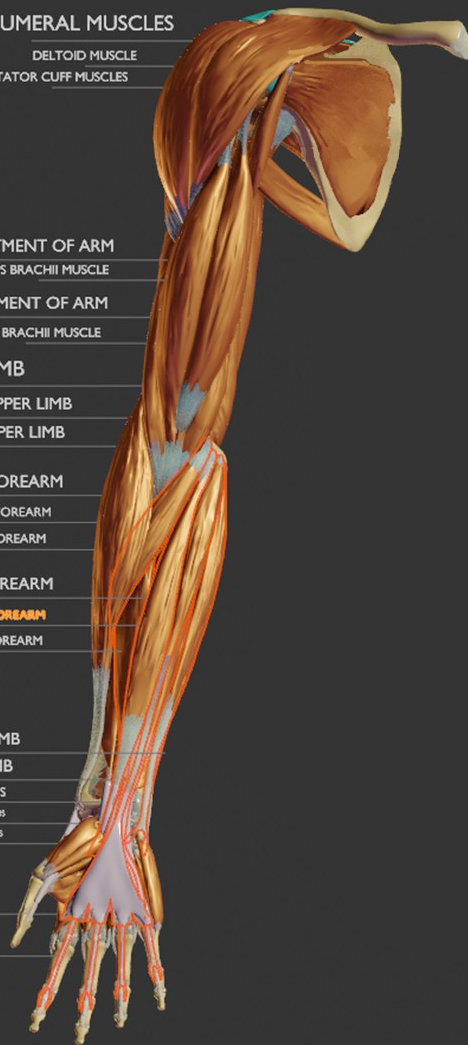
CARPAL TENDON SHEATHS

PALMAR CARPAL TENDON SHEATHS

DORSAL CARPAL TENDON SHEATHS

MUSCLES OF HAND

TENDON SHEATHS OF DIGITS OF HAND



(Z)	= COLORS
(ALT + Z)	= X - RAY
(ALT + B)	= CLIPPING BOX
(SHIFT + ALT + Z)	= KEY COLORS
(N > Z-ANATOMY > ...)	= STORED VIEWS
	= CROSS SECTIONS
	= LANGUAGES
	= COMIC SHADER
	= GROUP LABELS
(SHIFT + %)	= GROUP LABELS
(MMB) or (Numpad 4 / 6 / 2 / 8)	= ORBIT
(SHIFT + MMB) or (SHIFT + Num 4 / 6 / 2 / 8)	= PAN
(Numpad 1)	= FRONTAL VIEW
(CTRL + Numpad 1)	= DORSAL VIEW
(Numpad 3)	= LEFT VIEW
(CTRL + Numpad 3)	= RIGHT VIEW
(Numpad 7)	= CRANIAL VIEW
(CTRL + Numpad 7)	= CAUDAL VIEW
(ALT + MMB) Click & drag	= ORTHOGONAL VIEWS
(Numpad 9)	= FLIP POINT OF VIEW
(Numpad .)	= FRAME SELECTION
(HOME)	= FRAME ALL
(CTRL + SPACEBAR)	= MAXIMISE WINDOW

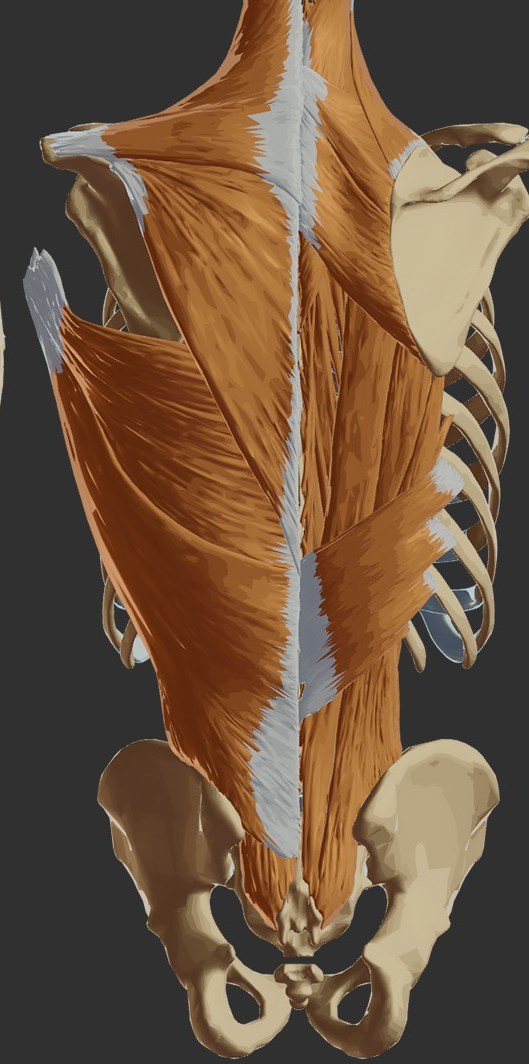
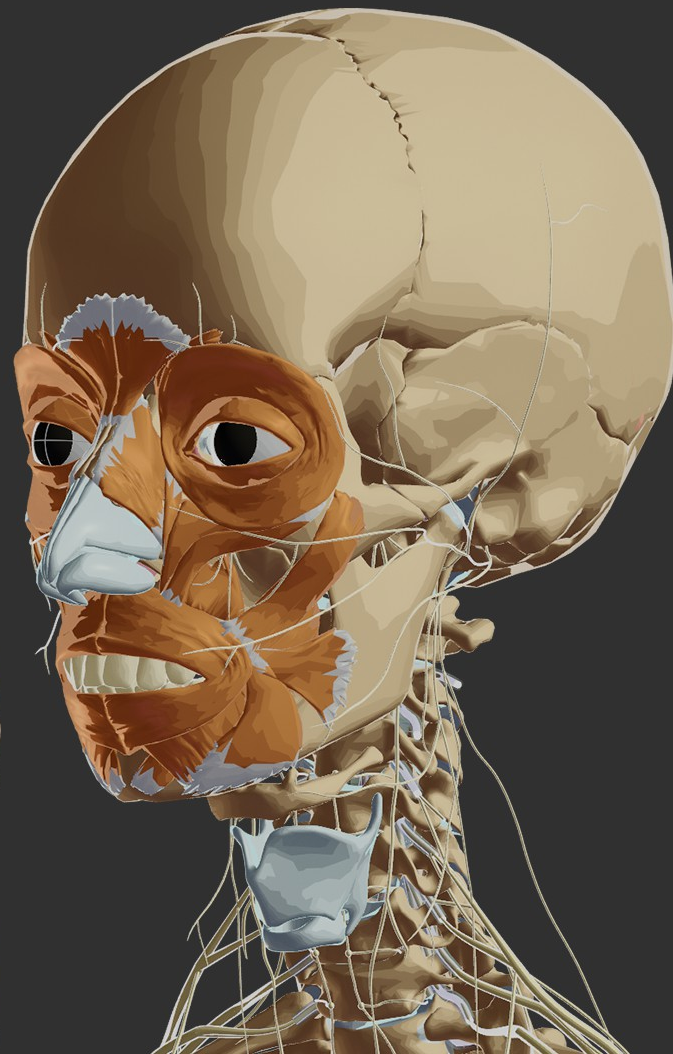
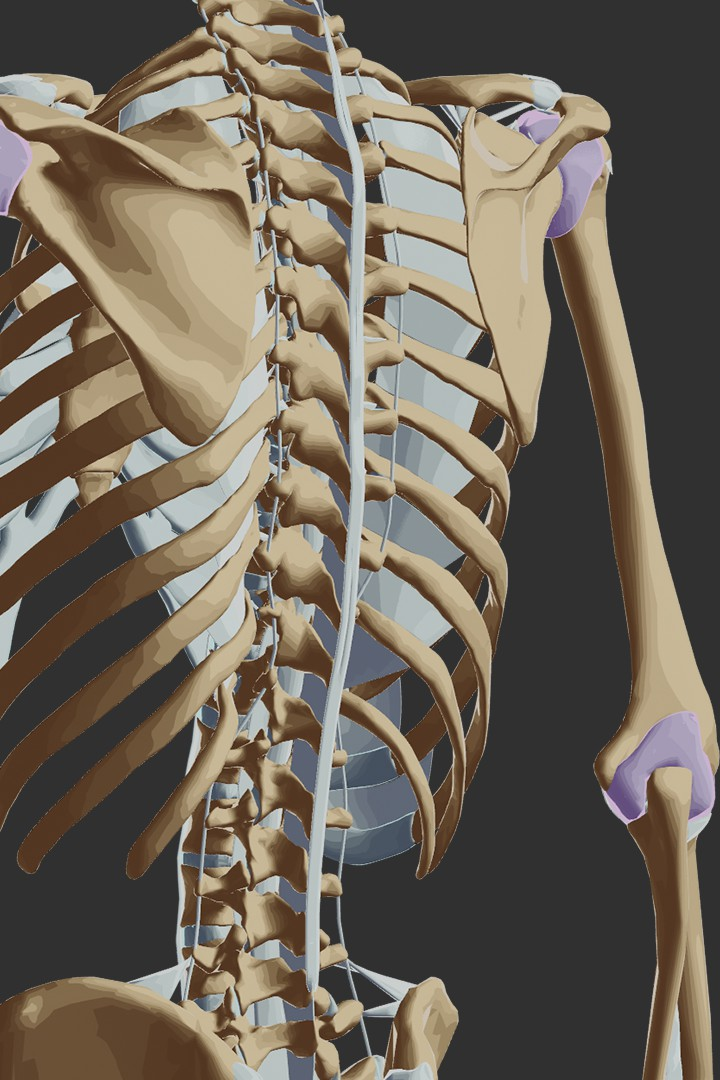
(1 / 2 / 3 / ...)	= CHANGE LAYER
(SHIFT + 1 / 2 / 3 / ...)	= COMBINE LAYERS
(A)	= SELECT ALL
(AA) or (ALT + A)	= DESELECT ALL
(LMB)	= SELECT
(SHIFT + LMB)	= SELECT MULTIPLE
(LMB) Click & drag	= BOX SELECT
(C)	= BRUSH SELECT
(+ MMB)	= CHANGE RADIUS
(RMB) with selection	= COLLECTIONS
(H)	= HIDE
(SHIFT + H)	= ISOLATE
(ALT + H)	= SHOW ALL
(CTRL + SHIFT + H)	= ISOLATE / LAYER
(CTRL + SHIFT + ALT + H)	= REVEAL LAYER
(%)	= LANGUAGE
(G) + X/Y/Z or SHIFT X/Y/Z	= GRAB (MOVE)
(ALT + G)	= RESET POSITION
(R) + X/Y/Z or SHIFT X/Y/Z	= ROTATE
(ALT + R)	= RESET ROTATION
(S) + X/Y/Z or SHIFT X/Y/Z	= SCALE
(ALT + S)	= RESET SCALE
(CTRL + Z)	= UNDO
(CTRL + SHIFT + Z)	= REDO
(CTRL + ALT + Z)	= UNDO HISTORY

WATCH TUTORIAL



Z-ANATOMY

THE NEW
OPEN SOURCE
3D ATLAS
OF ANATOMY



From BLENDER to an ANATOMY VIEWER



TEMPLATE

- Regular Blender
- Optional



PORTABLE

- No installation
- All inclusive





Z ANATOMY

EN



HOME

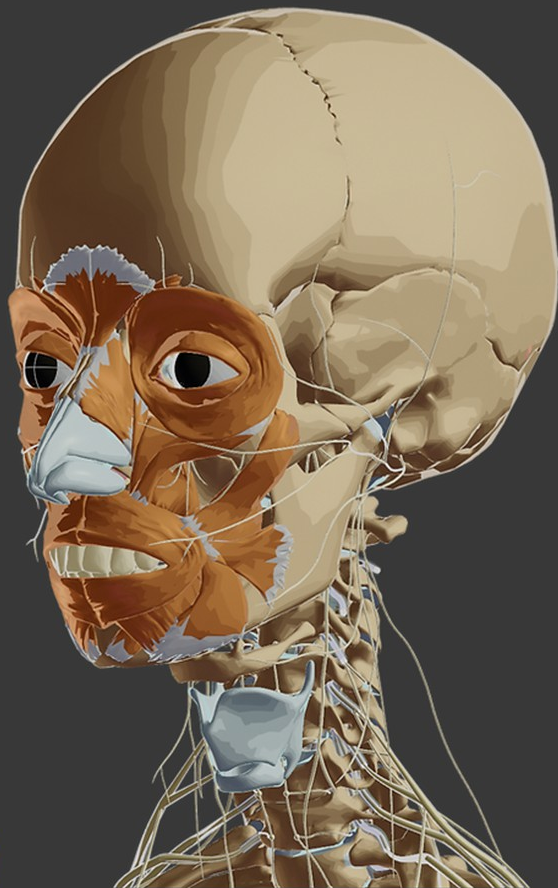
ATLAS

HOW TO

ABOUT

FORUM

THE
'LIBRE'
ATLAS
OF ANATOMY



PRESENTATION

TUTORIAL

DOWNLOAD





Blend the RESSOURCES

BODYPARTS3D

+ TA2 (Translated)

+ WIKIPEDIA (Edited)

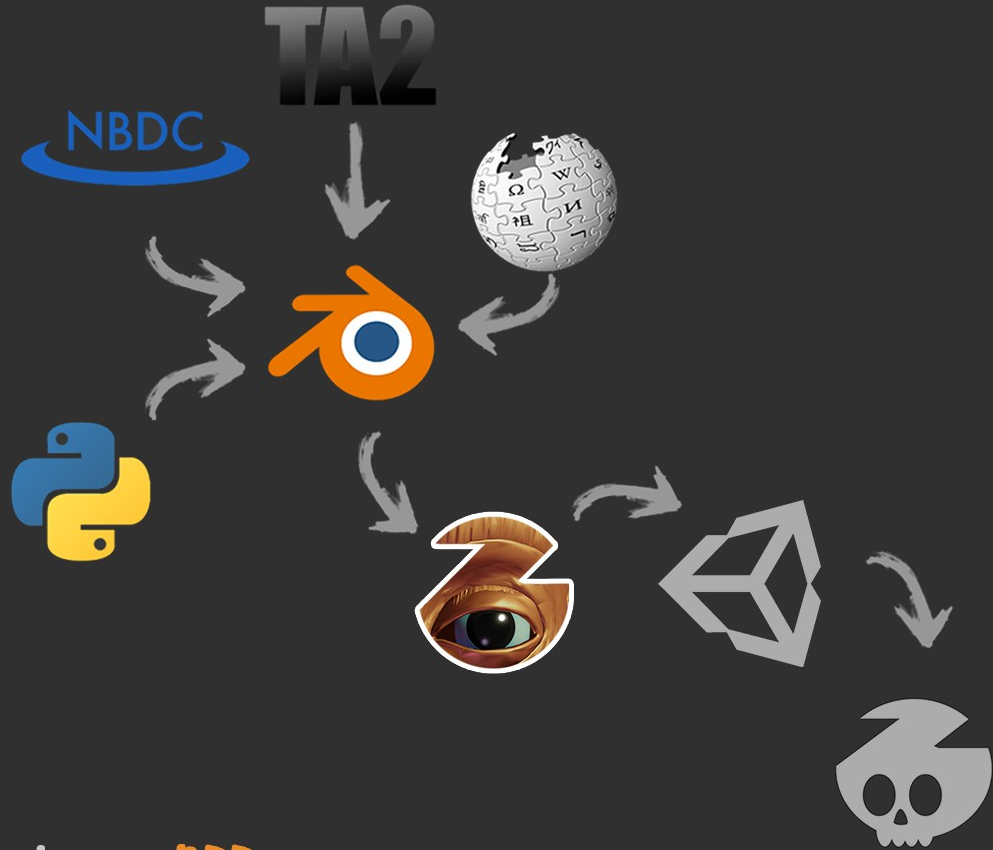
+ PYTHON (Adapted)

Inside BLENDER

=

into an ANATOMY VIEWER

Then, with UNITY, convert it into an APP





English

Lexicon Description Help

Selection

Center

Sections

Reset



Search...



- > Skeletal system
- < Muscular insertions
- > < Joints
- > < Muscular system
- > < Fasciae
- > < Arterial system
- > < Venous system
- > < Lymphoid organs
- > < Nervous system
- > < Visceral systems
- > < Regions of human body
- > < References and movements



Select a body part to see its definition



English

Lexicon Description Help

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Search...



- > Skeletal system
- < Muscular insertions
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Select a body part to see its definition



Skeletal system > Cranium > Bones of cranium > Parietal bone (L)

English



Lexicon

Description

Help



Selection



Visibility



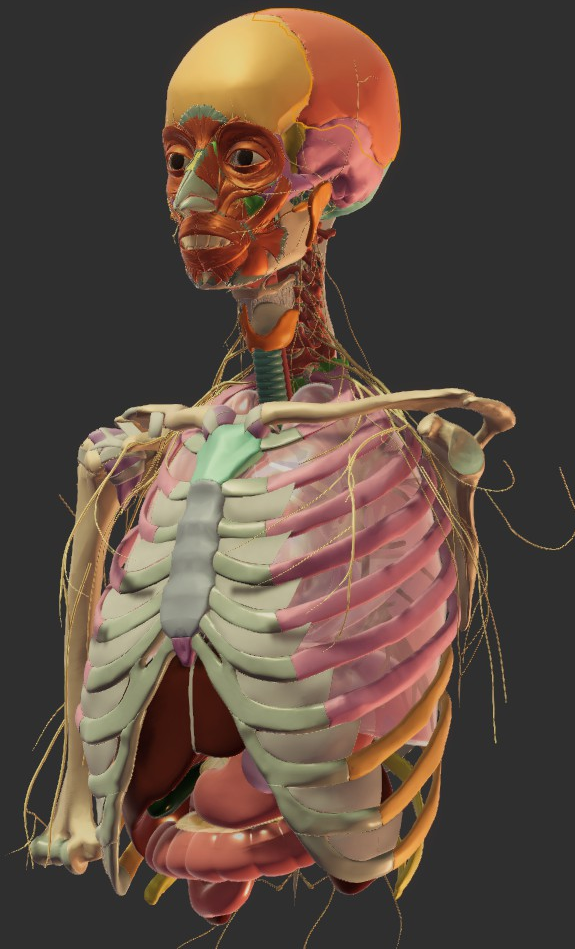
Center



Sections



Reset



Search...

- ✓ Skeletal system
 - > Axial skeleton
 - > Appendicular skeleton
- ✓ Cranium
 - ✓ Bones of cranium
 - Parietal bone (L)
 - > Parietal bone (R)
 - > Frontal bone
 - > Occipital bone
 - > Sphenoid bone
 - > Temporal bone (L)
 - > Temporal bone (R)

PARIETAL BONE

The parietal bones are two bones in the **skull** which, when joined together at a fibrous joint, form the sides and roof of the **cranium**.

In humans, each bone is roughly quadrilateral in form, and has two surfaces, four borders, and four angles.

It is named from the Latin *paries* (-ietis), wall.

EXTERNAL SURFACE:

The external surface [Fig. 1] is convex, smooth, and marked near the center by an eminence, the **parietal eminence** (*tuber parietale*) which



Open anatomisch 3D-model in het onderwijs

3D-modellen van de menselijke anatomie helpen studenten het menselijk lichaam te begrijpen. Commerciële 3D-pakketten zijn extreem duur en daardoor niet toegankelijk voor opleidingen. Wereldwijd is er slechts één 3D-model onder een open (Creative Commons) licentie.

Het doel van dit project is om gezamenlijk (met vier universiteiten) een open 3D-model van de menselijke anatomie ontwikkelen dat bruikbaar is in het onderwijs. Uitgangspunt is het bestaande BodyParts/Z-anatomy 3D-model, dat in dit project geoptimaliseerd wordt. Het doel is daarnaast dat door de samenwerking tussen de vier instellingen het bewustzijn rond open onderwijsmaterialen groeit en het gebruik daarvan gangbaarder wordt.



**Universiteit
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The Netherlands



**Maastricht
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The Netherlands



**Universiteit
Utrecht**
The Netherlands

KATHOLIEKE UNIVERSITEIT
LEUVEN



BELIEVER



LIBRIST



GRAPHIST



ANATOMIST



REDACTOR



TRANSLATOR



PYTHON



MODELER



UNITY

Z-ANATOMY

THE OPEN SOURCE ATLAS OF ANATOMY

Project, Anatomy and 3D modeling:
Gauthier KERVYN

Python scripting:
Marcin ZIELINSKI

Unity development:
Lluís VINENT

Portuguese translation:
Ana BIGLO

Spanish translation:
Carlos TORRES



This project uses :

The 3D models from
'BODYPARTS3D'

The Definitions from
'WIKIPEDIA'

'BLENDER'
3D Software

