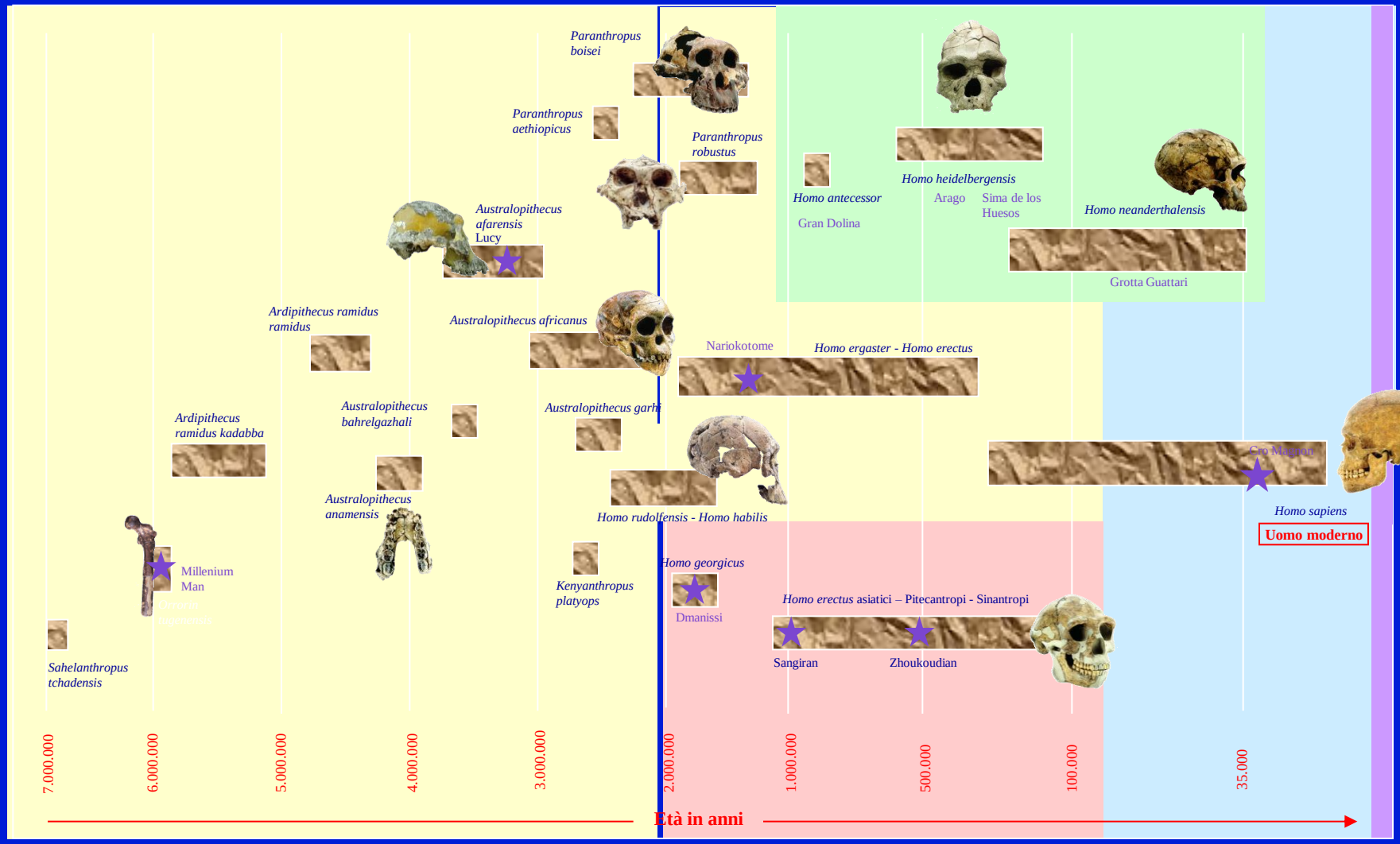
Africa

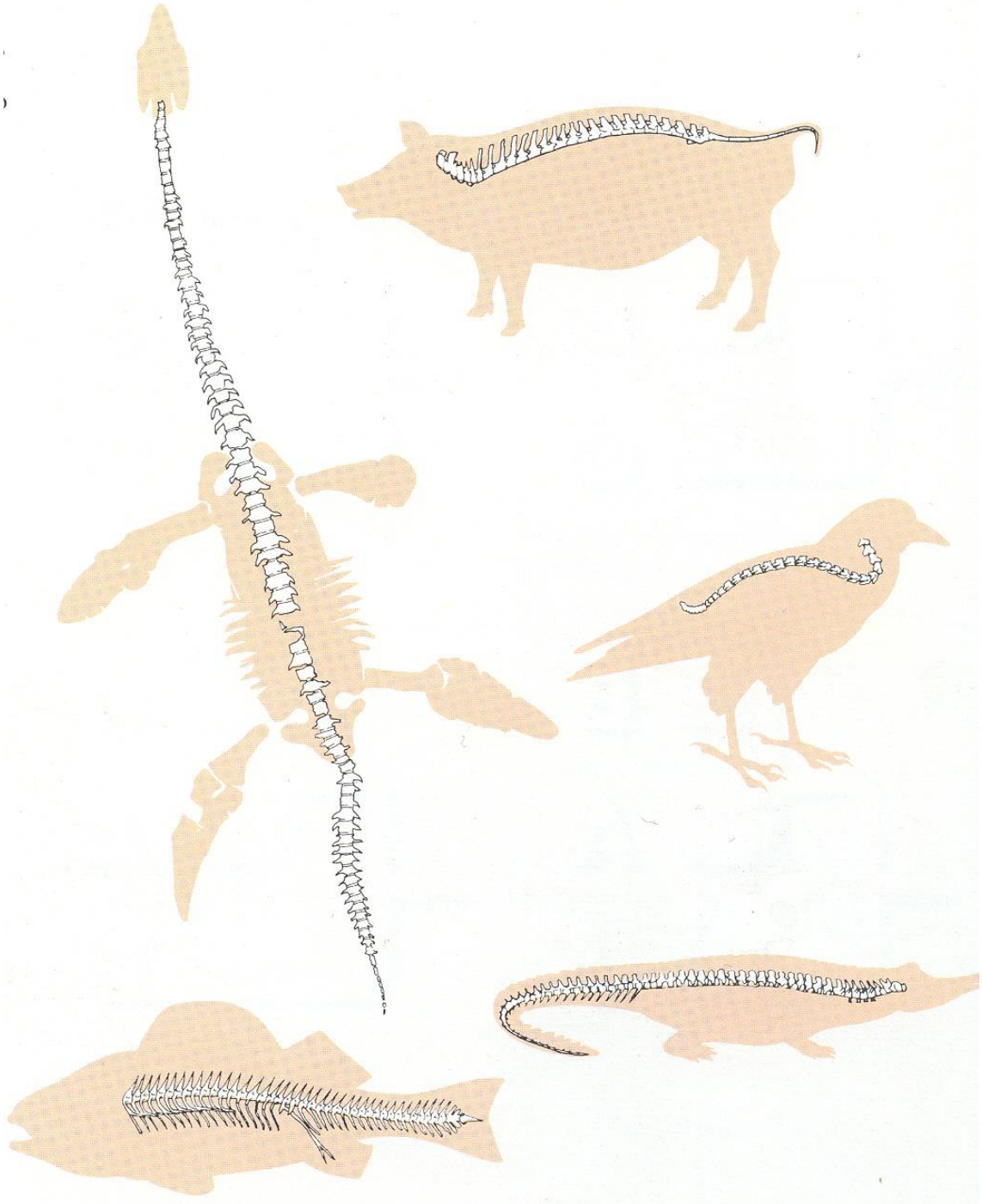
Europa

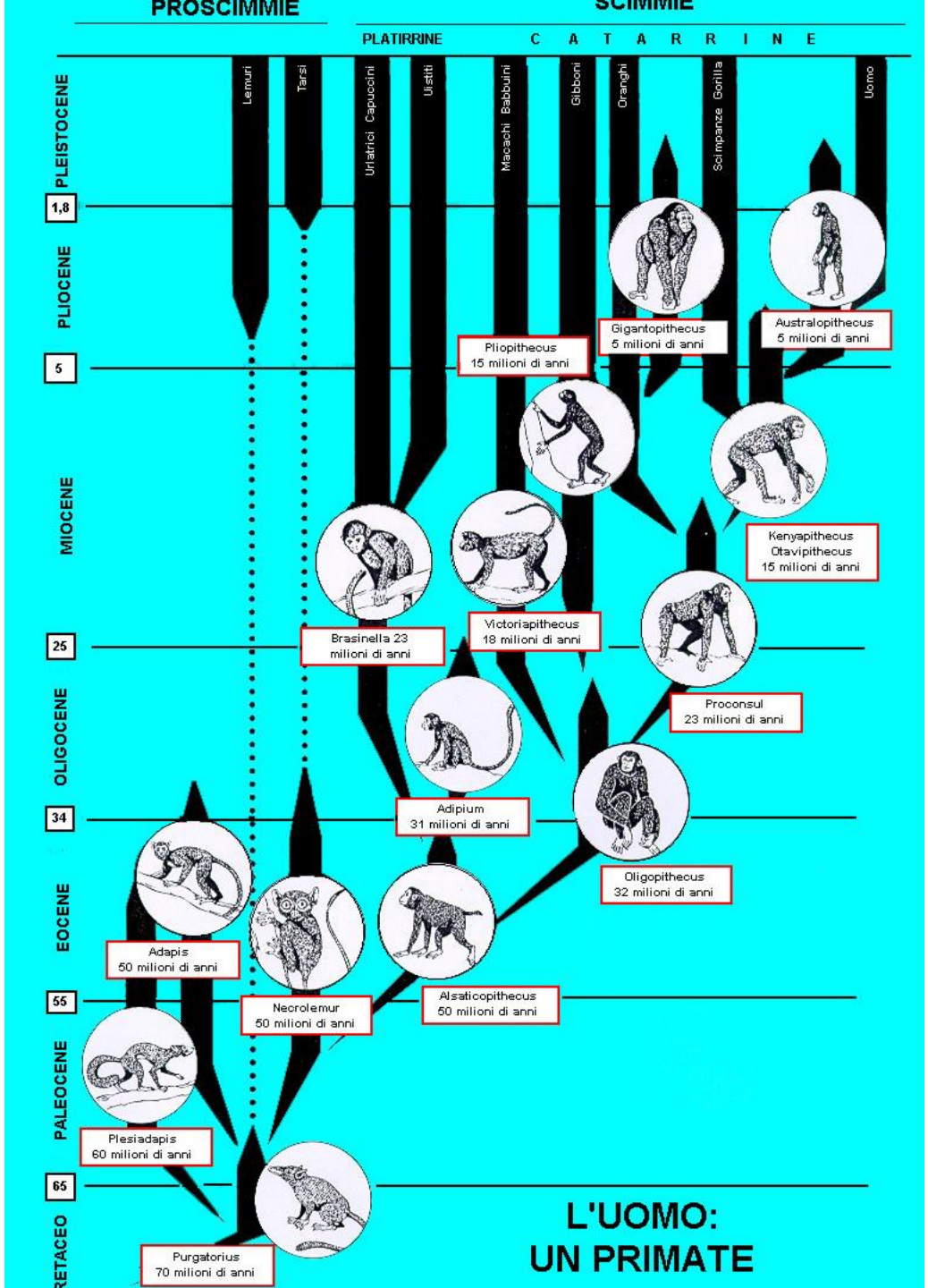
Asia e Vicino Oriente

Africa – Europa -Asia

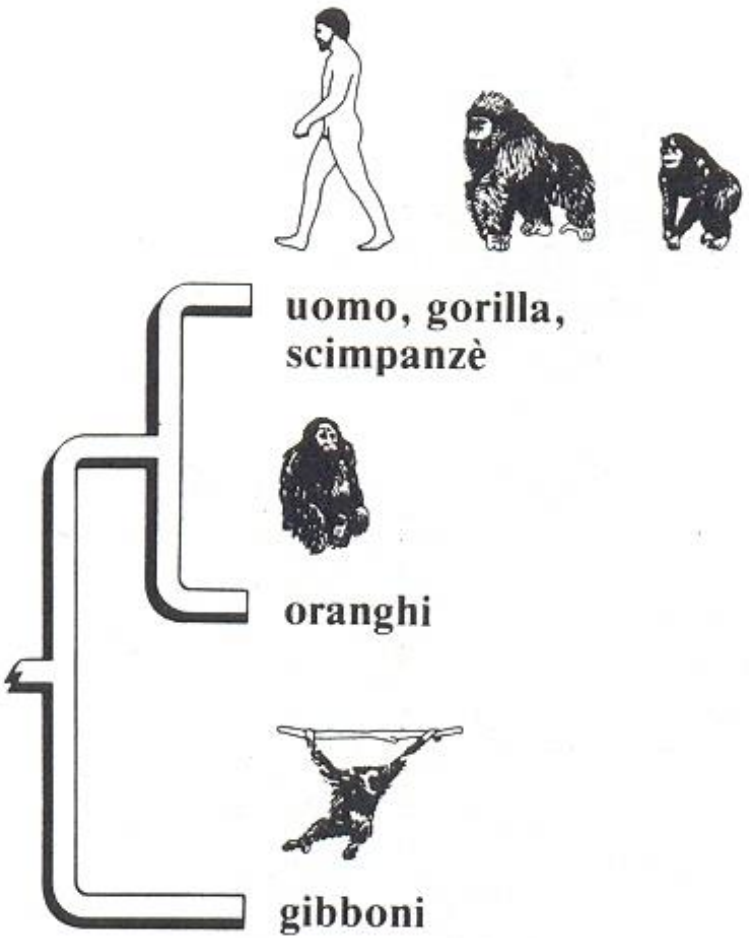
Totalità delle terre emerse

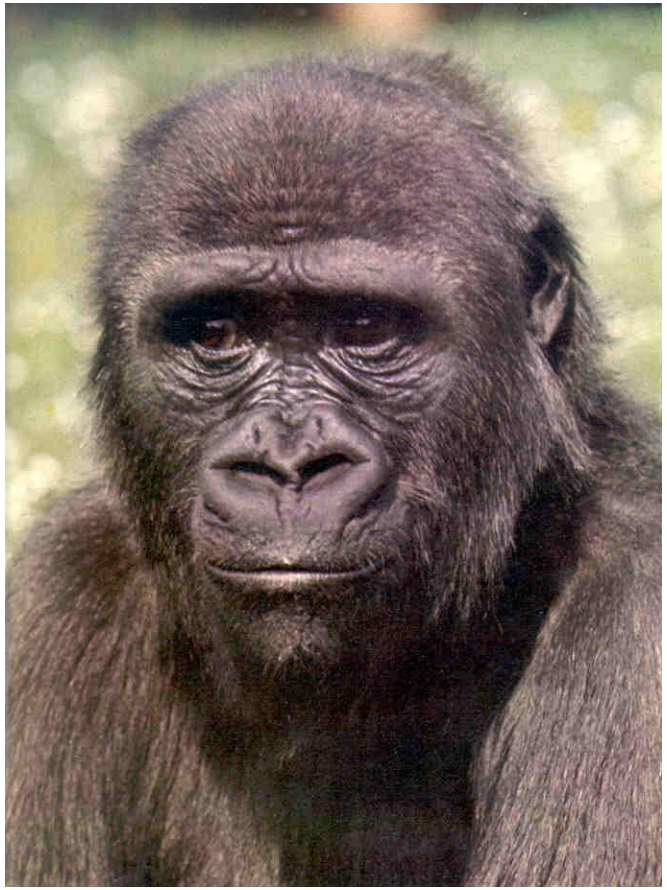




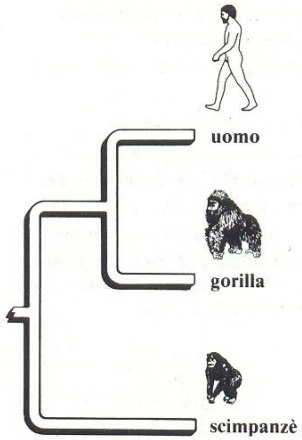

PROSCIMMIE
SCIMMIE
PLATIRRINE
C A T A R R I N E
Lemuri
Tarsi
Uriatrici Capuccini
Ustiti
Macachi Babbuini
Gibboni
Oranghi
Scimpanze Gorilla
Uomo
PLEISTOCENE
1,8
PLIOCENE
5
MIOCENE
25
OLIGOCENE
34
EOCENE
55
PALEOCENE
65
CRETACEO
Gigantopithecus
5 milioni di anni
Australopithecus
5 milioni di anni
Pliopithecus
15 milioni di anni
Kenyapithecus
Otavipithecus
15 milioni di anni
Brasinella 23
milioni di anni
Victoriapithecus
18 milioni di anni
Proconsul
23 milioni di anni
Adipium
31 milioni di anni
Oligopithecus
32 milioni di anni
Adapis
50 milioni di anni
Necrolemur
50 milioni di anni
Alsaticopithecus
50 milioni di anni
Plesiadapis
60 milioni di anni
Purgatorius
70 milioni di anni
L'UOMO:
UN PRIMATE

Gibbone dalle mani bianche
Hylobates lar

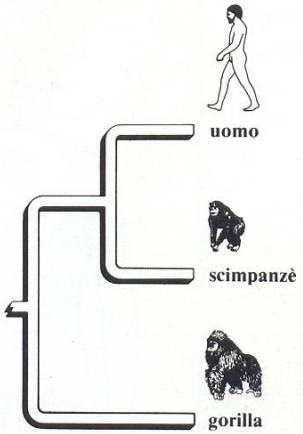




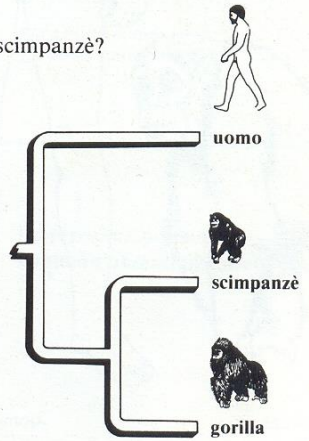
Sono i gorilla?



o gli scimpanzè?



o entrambi, gorilla **e** scimpanzè?



Caratteristiche comuni	Altri primati	Gorilla	Uomo	Scimpanzè	Secondo questa prova, quale cladogramma è corretto?
Ossa e denti					
lunghezza degli arti	braccia e gambe uguali	gambe piú corte delle braccia	braccia piú corte delle gambe	gambe piú corte delle braccia	**3**
denti canini	grandi	grandi	piccoli	grandi	potrebbe essere **1, 2** o **3**
pollici	lunghi	corti	lunghi	corti	**3**
Parti molli del corpo					
capelli	corti	corti	lunghi	corti	potrebbe essere **1, 2** o **3**
muscoli del polpaccio	piccoli	piccoli	grandi	piccoli	potrebbe essere **1, 2** o **3**
natiche	magre	magre	grasse	magre	potrebbe essere **1, 2** o **3**
Cromosomi					
numero totale	42 o piú	48	46	48	**3**
struttura dei cromosomi 5 e 12		differente dagli altri primati	come gli altri primati	differente dagli altri primati	**3**
«fluorescenza» dei cromosomi Y e 13		uguale agli esseri umani	uguale ai gorilla	come gli altri primati	**1**
Molecole					
catena dell'alfa emoglobina paragonata con quella di un essere umano	alcune differenze	un amminoacido differente		identica	**2**
«fattore GM» nel sangue	non variabile	non variabile	variabilità come gli scimpanzè	variabilità come gli esseri umani	**2**
sequenza degli amminoacidi nella mioglobina		come gli scimpanzè	generalmente come gli altri primati		**3**

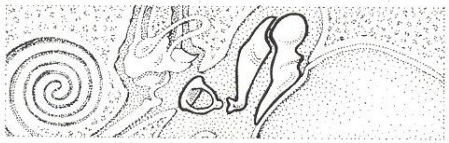
una scimmia antropomorfa è un primate
ed un primate è un mammifero
ed un mammifero è un vertebrato.

Quindi una scimmia antropomorfa
ha tutte queste caratteristiche:

- una colonna vertebrale

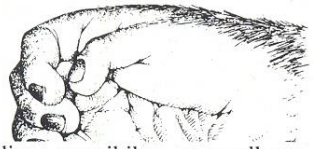
- pelliccia o peli

- ghiandole mammarie

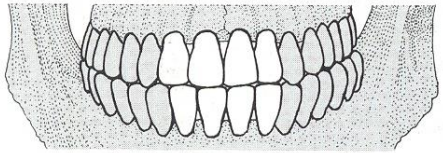


- 3 ossicini distinti nell'orecchio medio

- unghie alle dita delle mani e dei piedi



- un pollice opponibile ... o un alluce

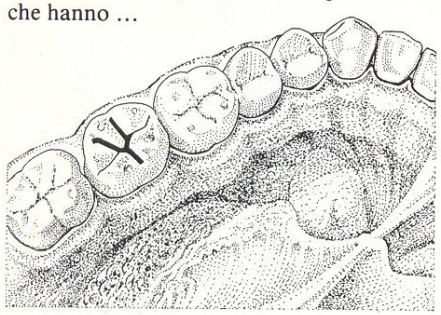


- quattro incisivi nella mascella e nella mandibola

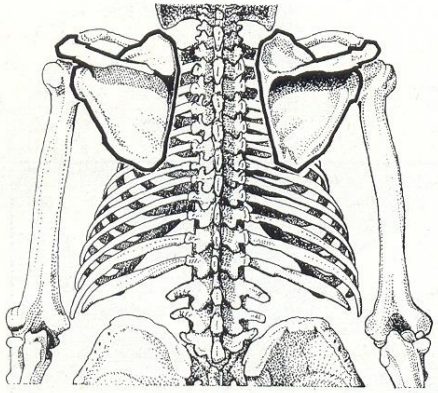
L'uomo è una scimmia antropomorfa

Se osserviamo i primati piú da vicino, vediamo che anch'essi si possono classificare in un certo numero di gruppi differenti. Uno di questi gruppi è quello delle **scimmie antropomorfe**.

Le scimmie antropomorfe sono primati che hanno ...

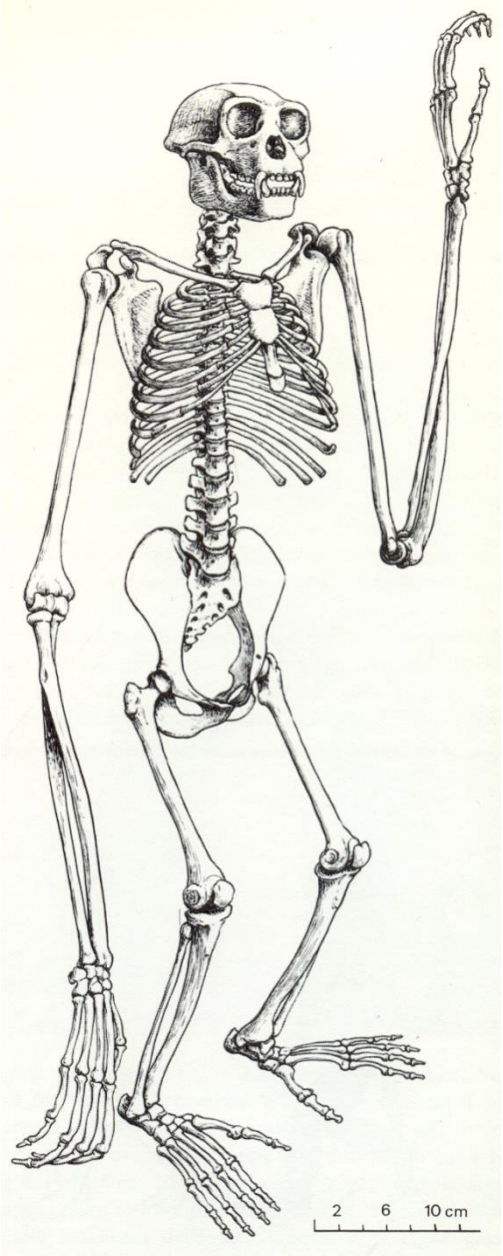


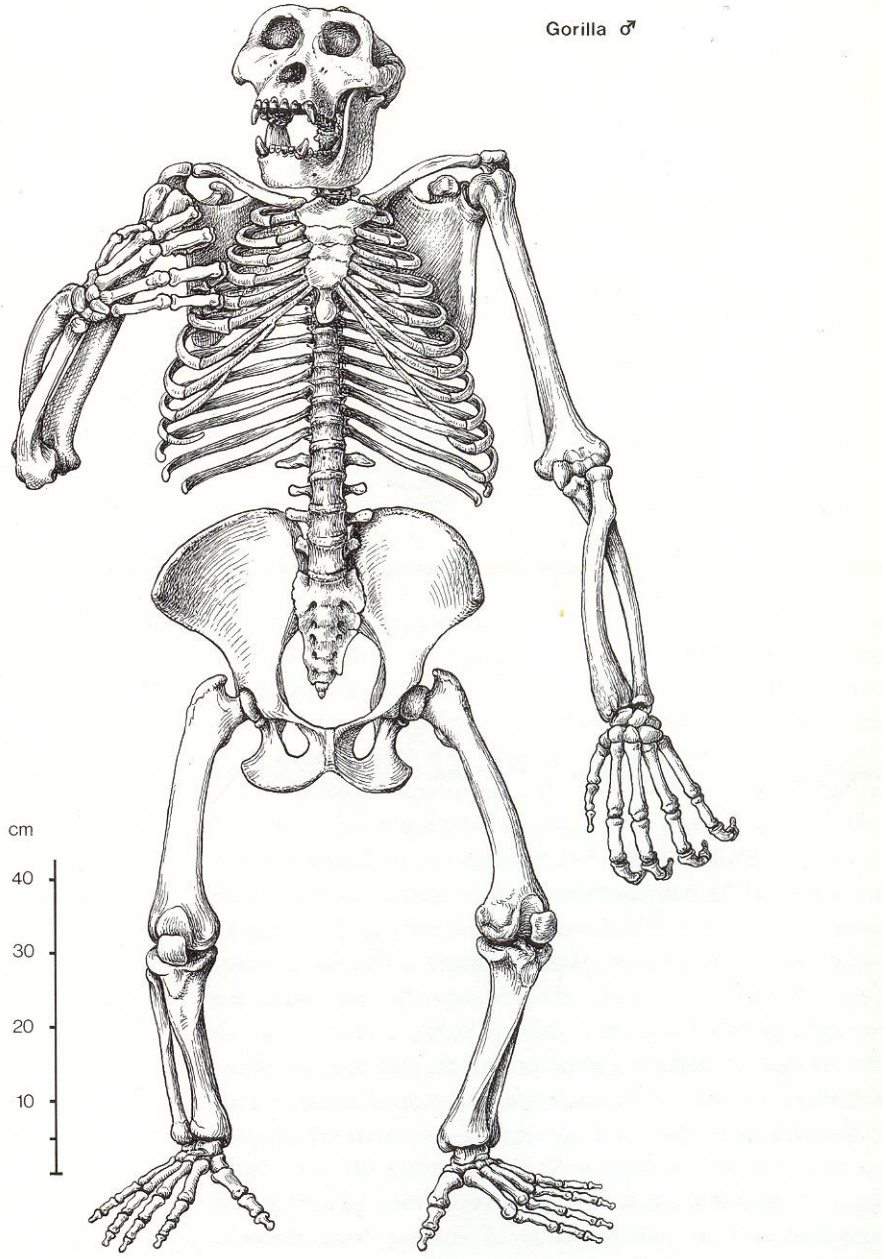
- un segno a forma di Y sulla superficie dei loro molari

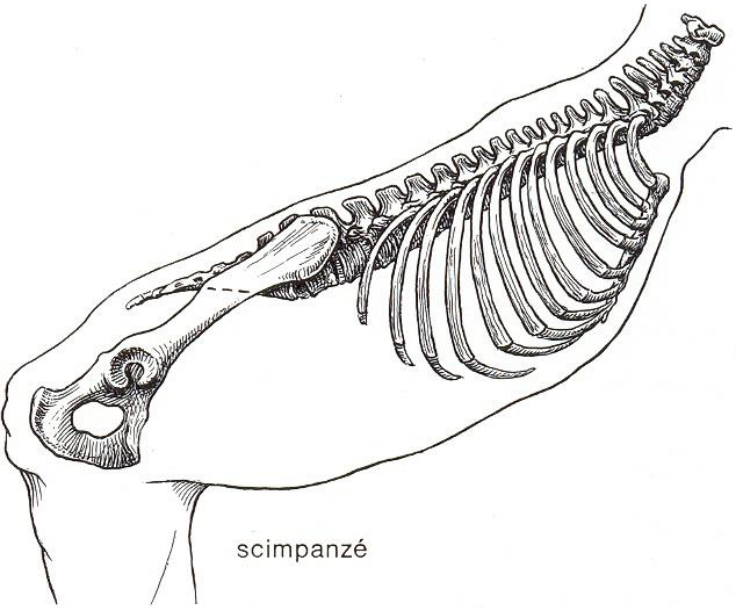


- le scapole sul dorso, non ai lati

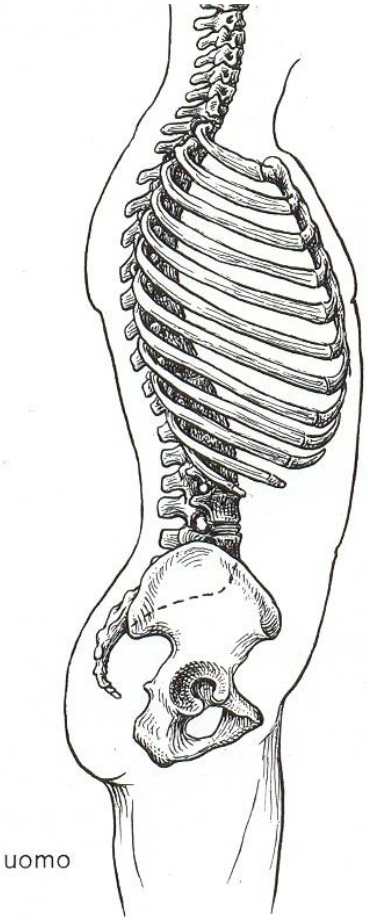
- niente coda


2 6 10 cm

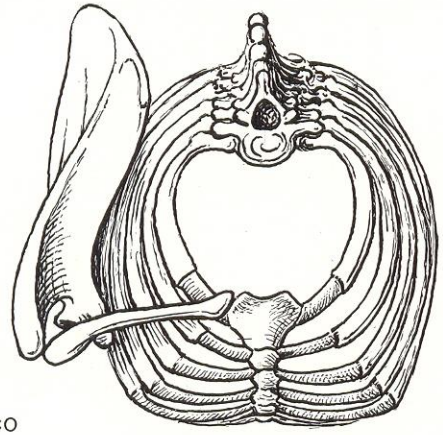

Gorilla ♂
cm
40
30
20
10



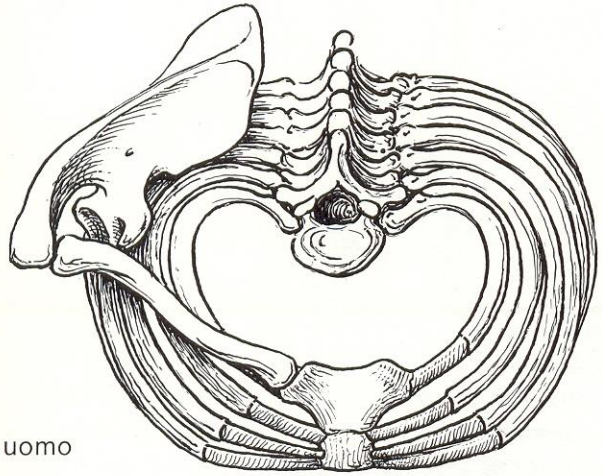
scimpanzé



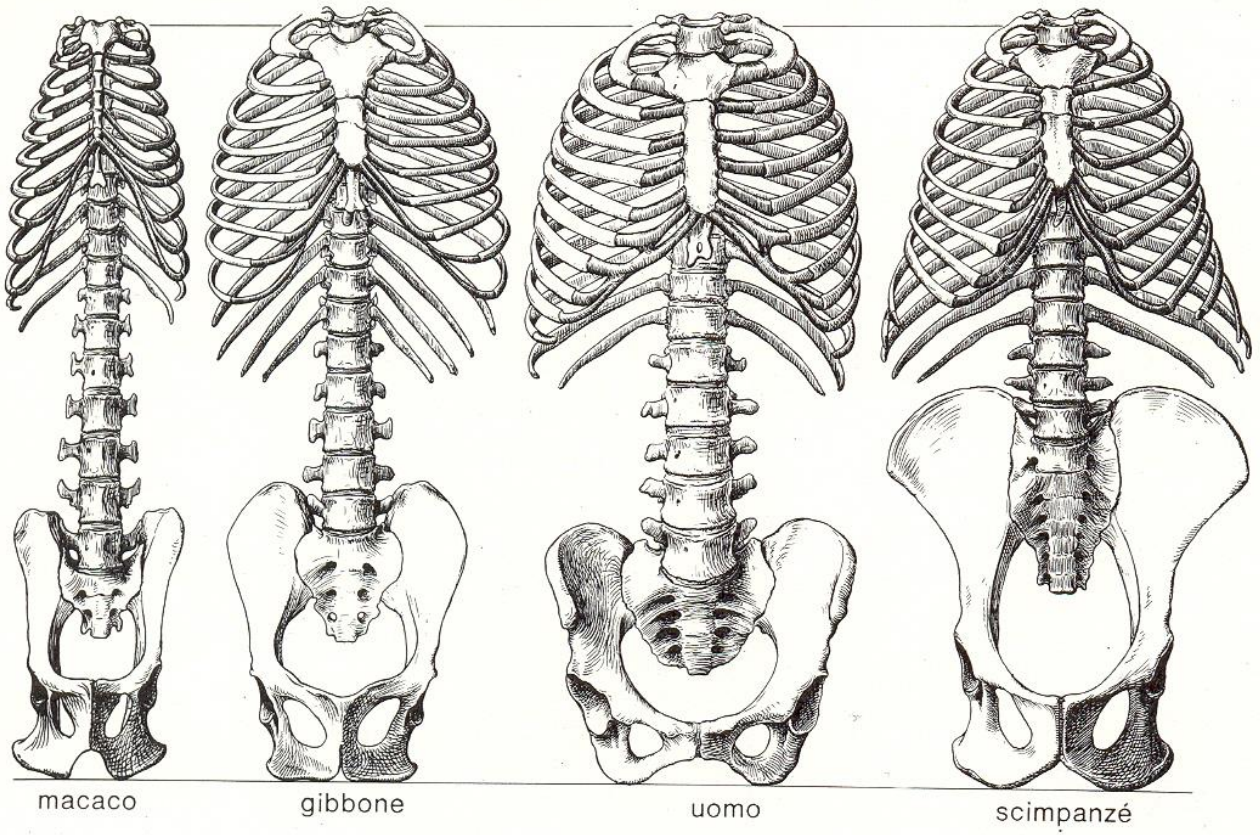
uomo

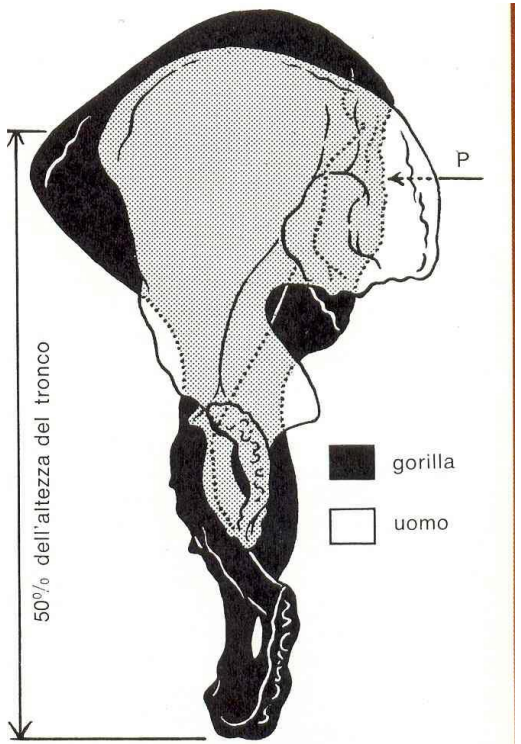


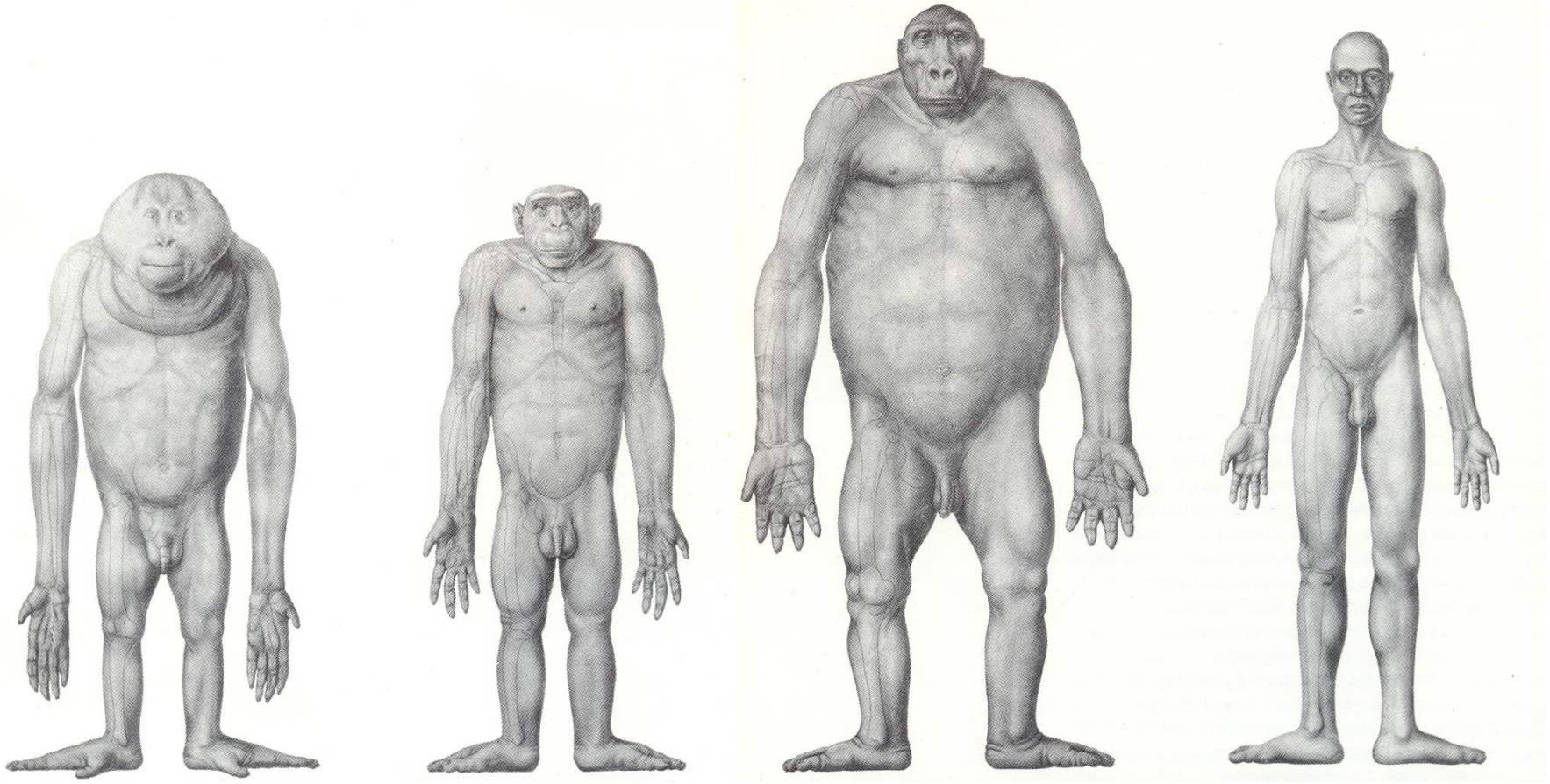
macaco

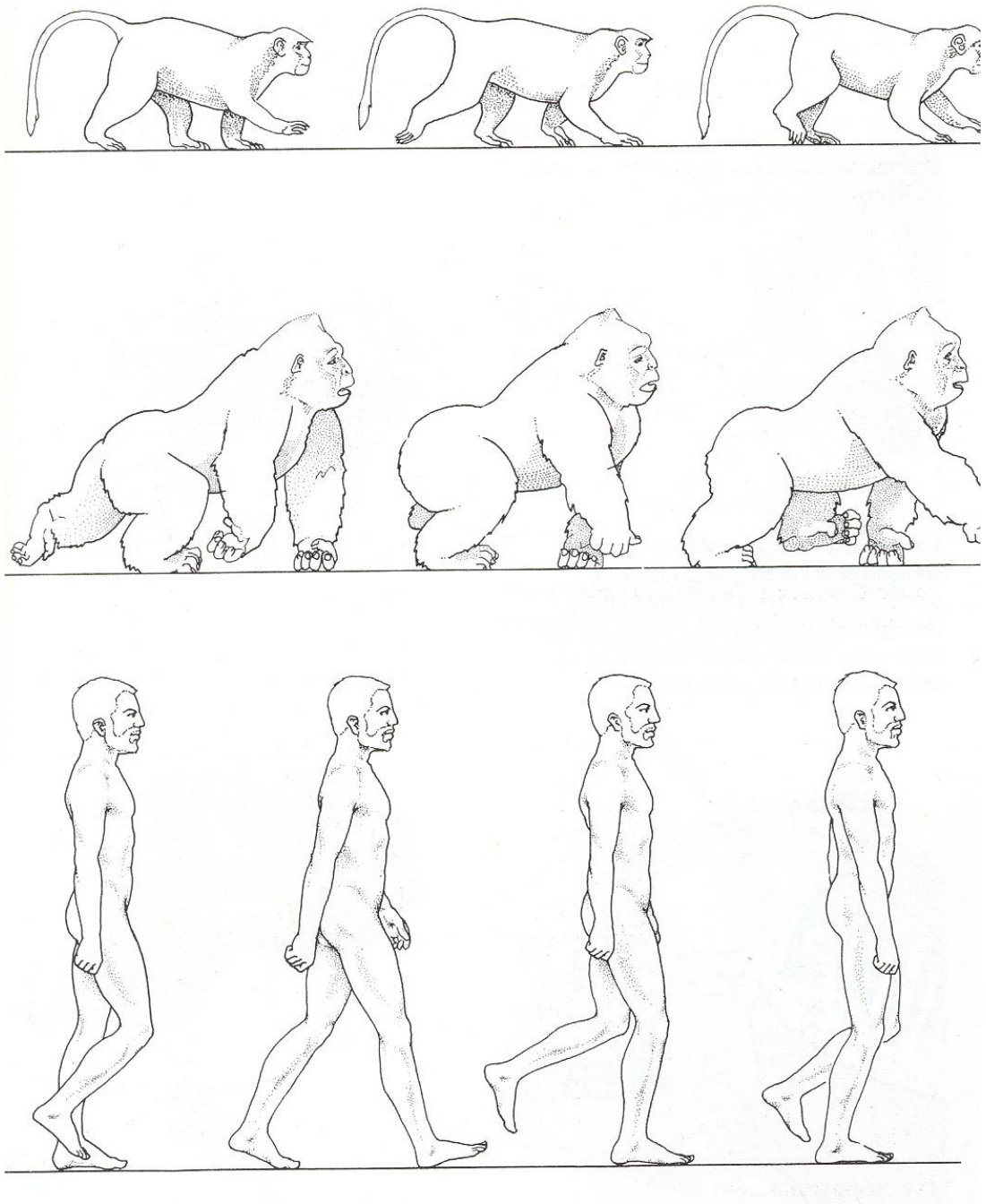


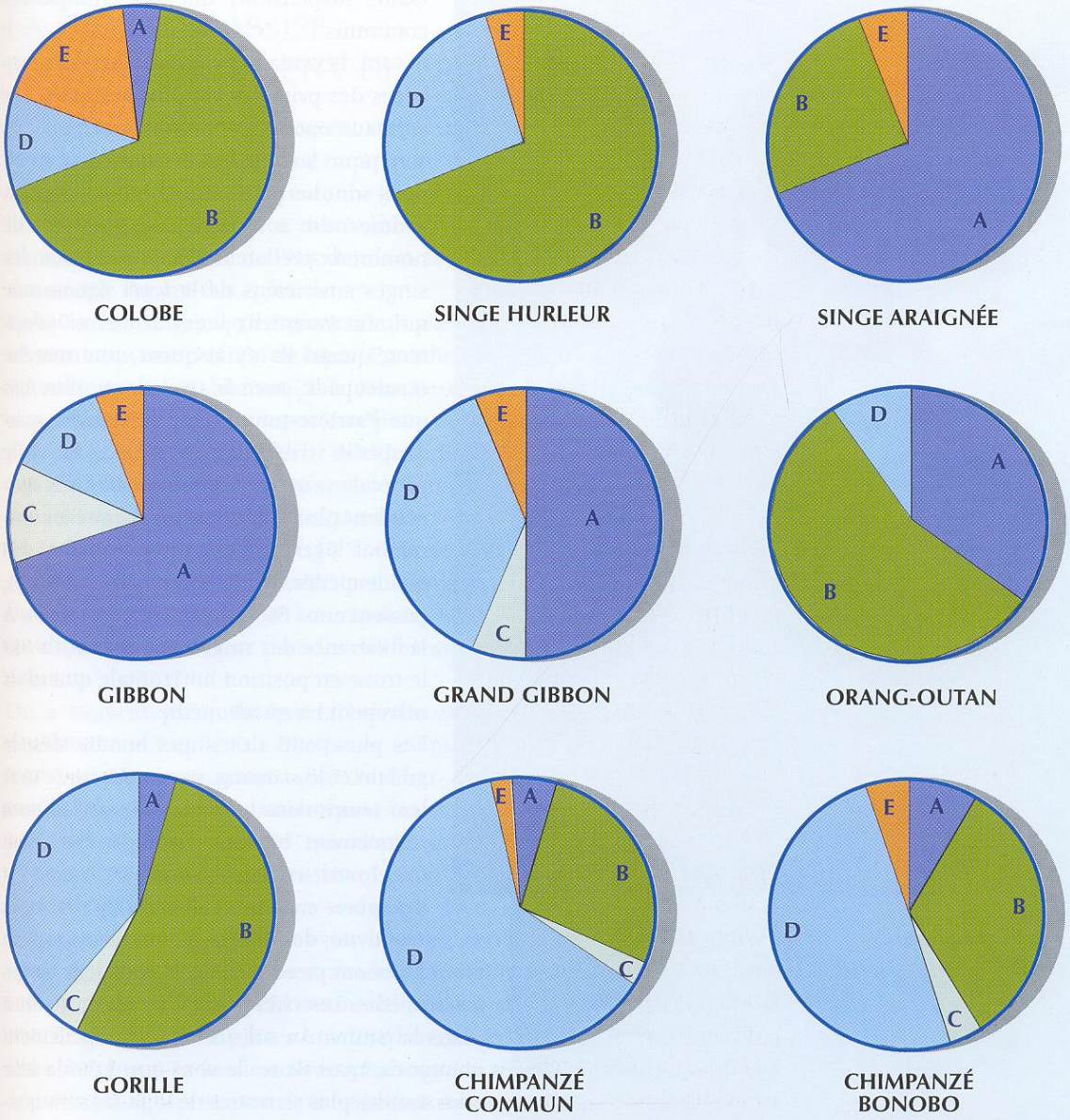
uomo


macaco
gibbone
uomo
scimpanzé


P
50% dell'altezza del tronco
gorilla
uomo

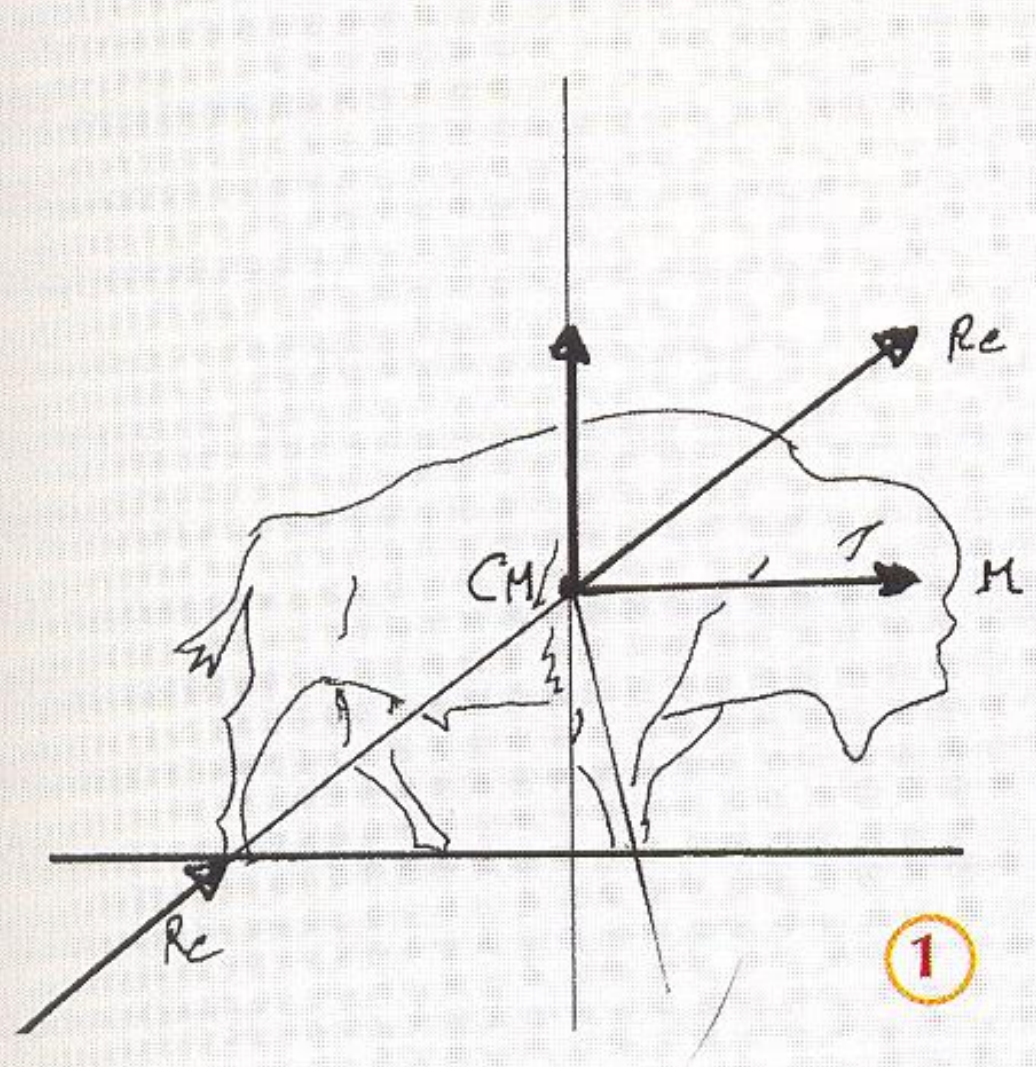




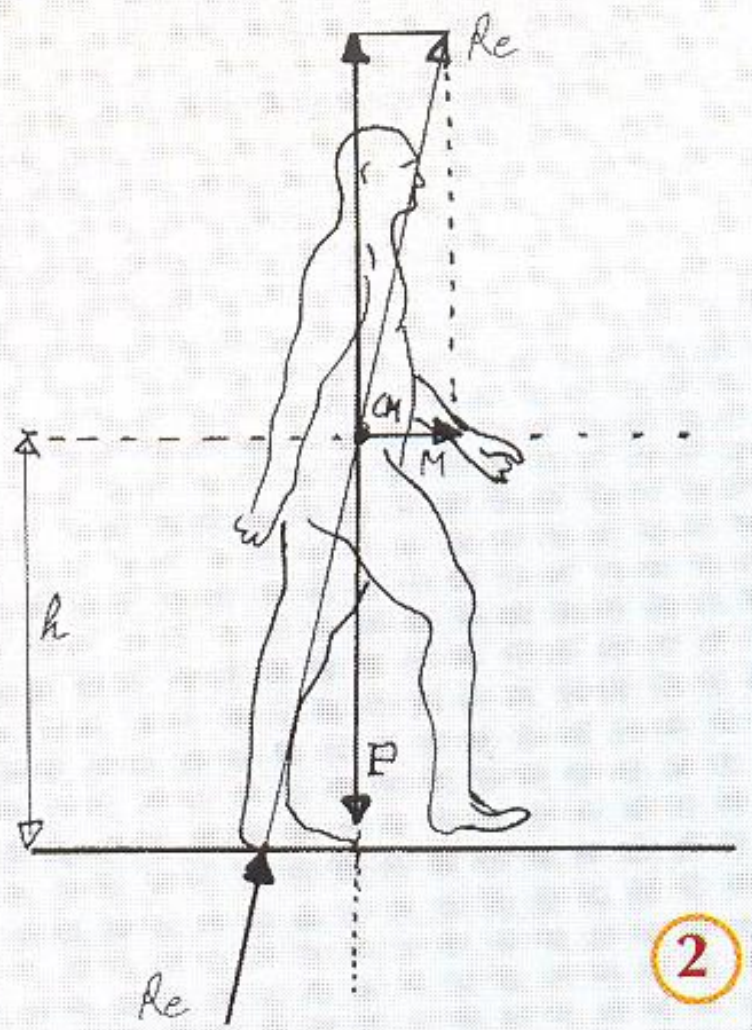


Modes de déplacement utilisés en milieu arboricole par les primates. *Pourcentage de temps consacré à chaque mode de locomotion dans les arbres (en moyenne selon les espèces).*

A : Brachiation
B : Quadrupédie
C : Marche bipède
D : Grimper
E : Saut



1

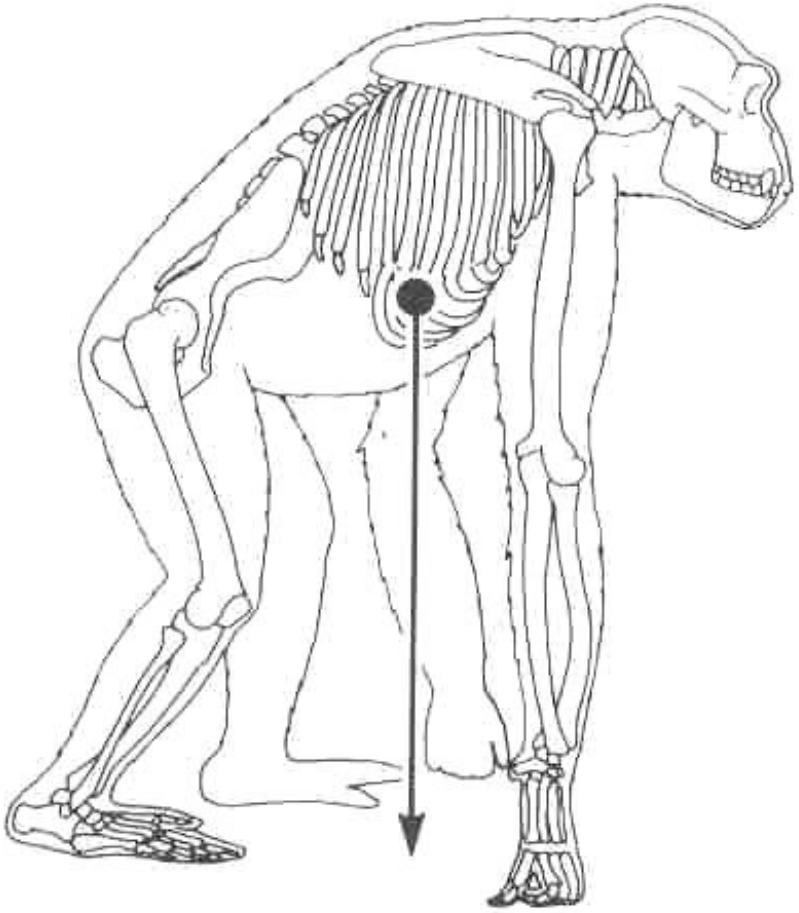


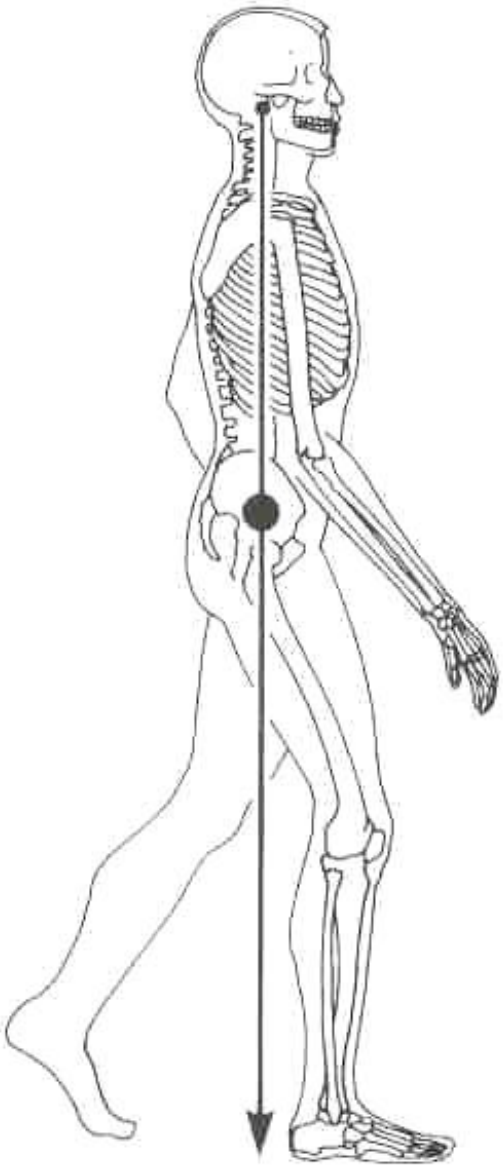
2

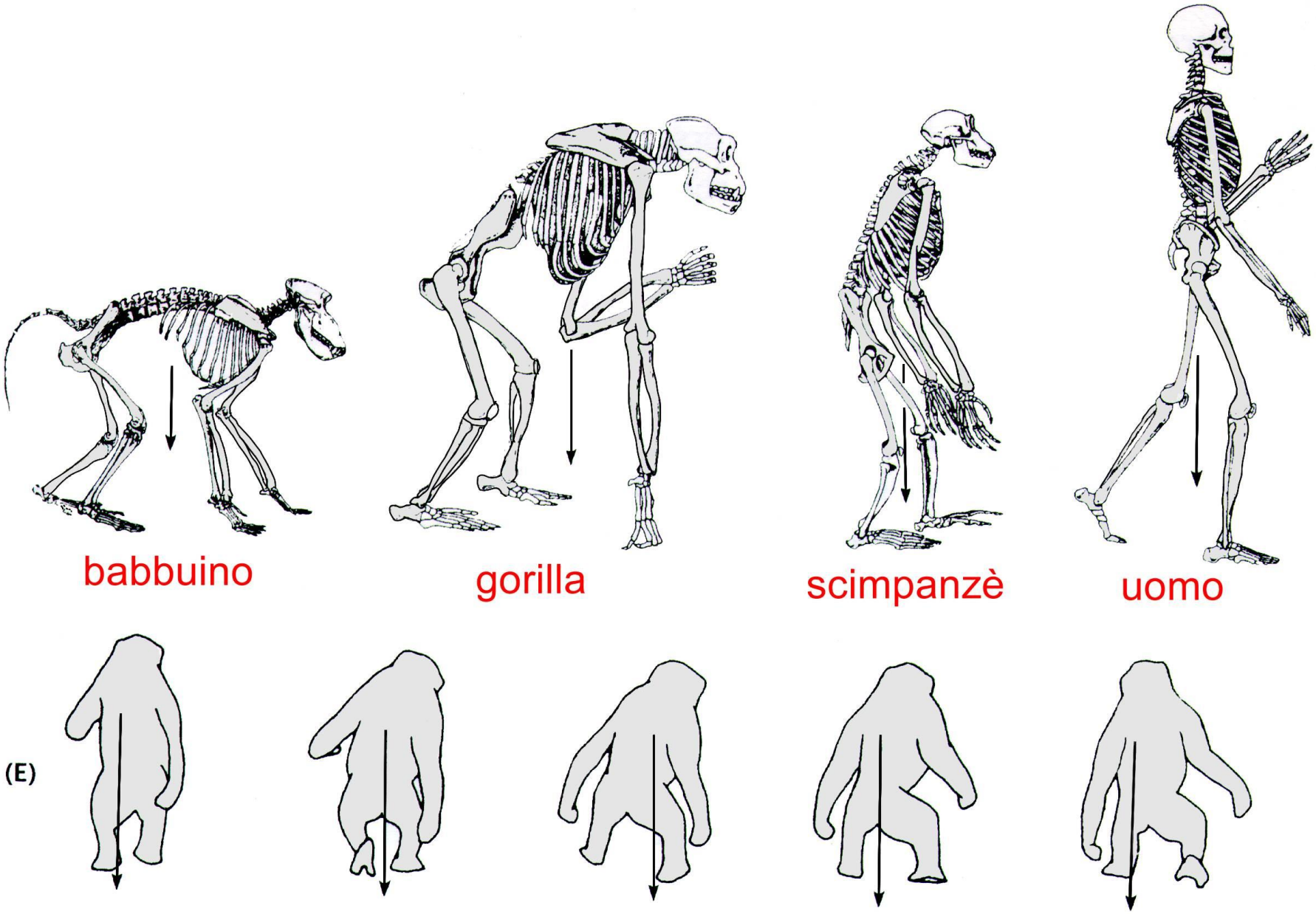
Ep: énergie potentielle, Mgh, où M est la masse, g l'accélération de la gravité, h la hauteur du centre de masse au-dessus du sol.
M: composante horizontale de la réaction qui «pousse» le centre de masse vers l'avant.

C'est la force responsable du mouvement.
Re: *force de réaction du sol au point d'appui ; force oblique transmise vers le haut au centre de masse.*

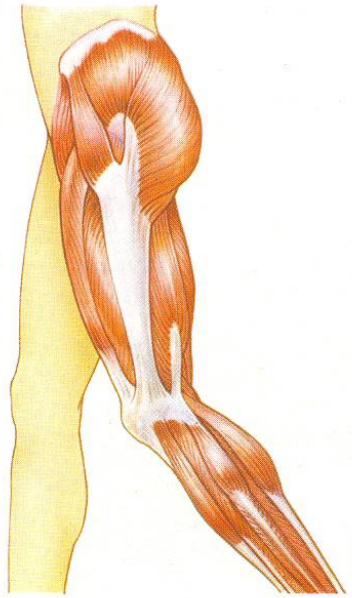
Ricordarsi della La torre di Pisa!



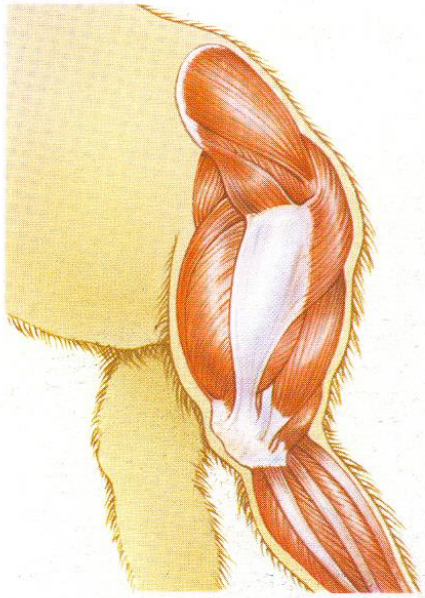



babbuino
gorilla
scimpanzè
uomo
(E)
Bipedismo occasionale

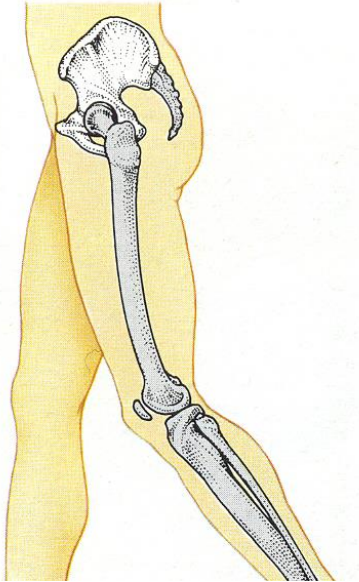
uomo

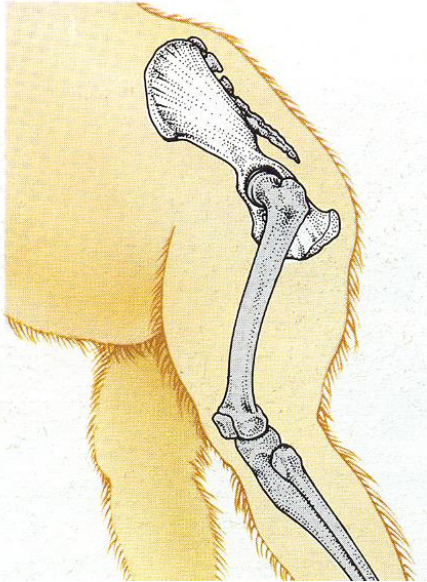


gorilla



La pelvi è importante nella locomozione perché vi sono attaccati la maggior parte dei muscoli usati per camminare. La grandezza relativa di alcuni di questi muscoli usati per camminare è alquanto diversa negli esseri umani e nei gorilla. E la forma delle ossa pelviche riflette queste differenze.

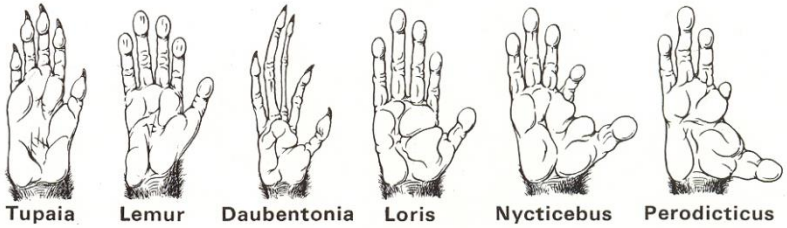


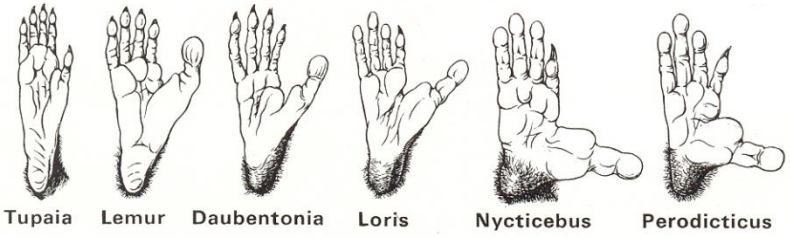


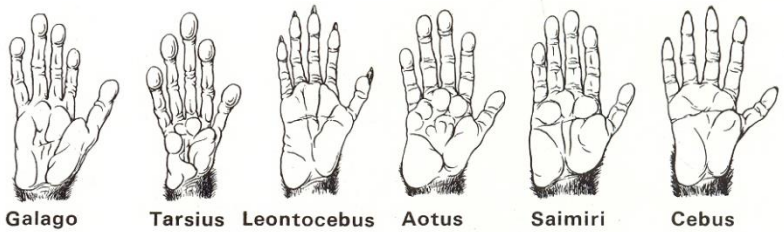
Savana, ambiente a forte competitività

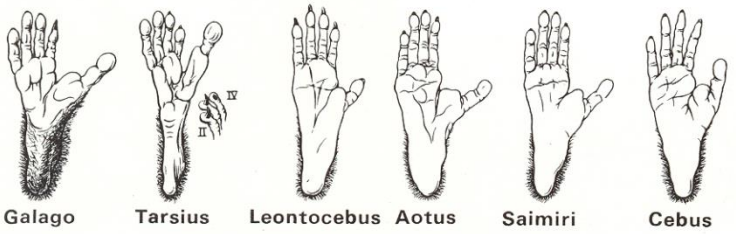
LA STAZIONE ERETTA

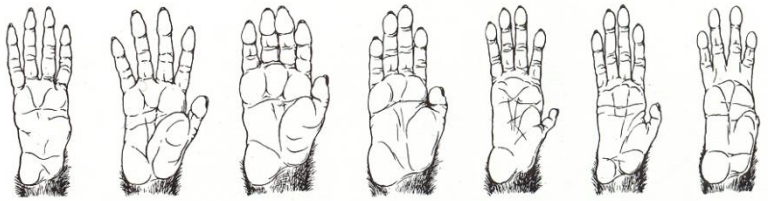
- **La locomozione bipede rappresenta una condizione stabile che ha comportato una serie di modificazioni notevoli a livello muscolare e scheletrico:**
- **verticalizzazione del tronco con spostamento in avanti del foro occipitale situato sulla base del cranio**
- **il femore si è allungato e le ossa del braccio (radio e ulna) si sono accorciate**
- **il bacino si è allargato ed accorciato**
- **l'alluce si è allineato con le altre dita e sotto la pianta del piede si è prodotta una doppia curvatura atta ad assorbire gli urti che si producono durante la deambulazione**

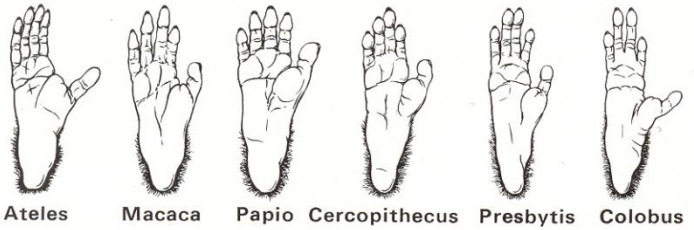

Tupaia
Lemur
Daubentonia
Loris
Nycticebus
Perodicticus

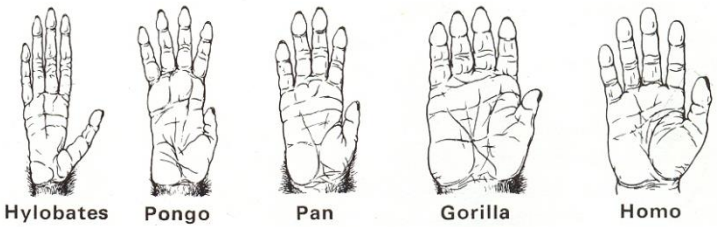

Tupaia
Lemur
Daubentonia
Loris
Nycticebus
Perodicticus

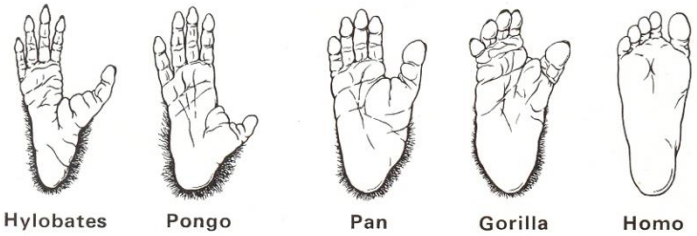

Galago
Tarsius
Leontocebus
Aotus
Saimiri
Cebus

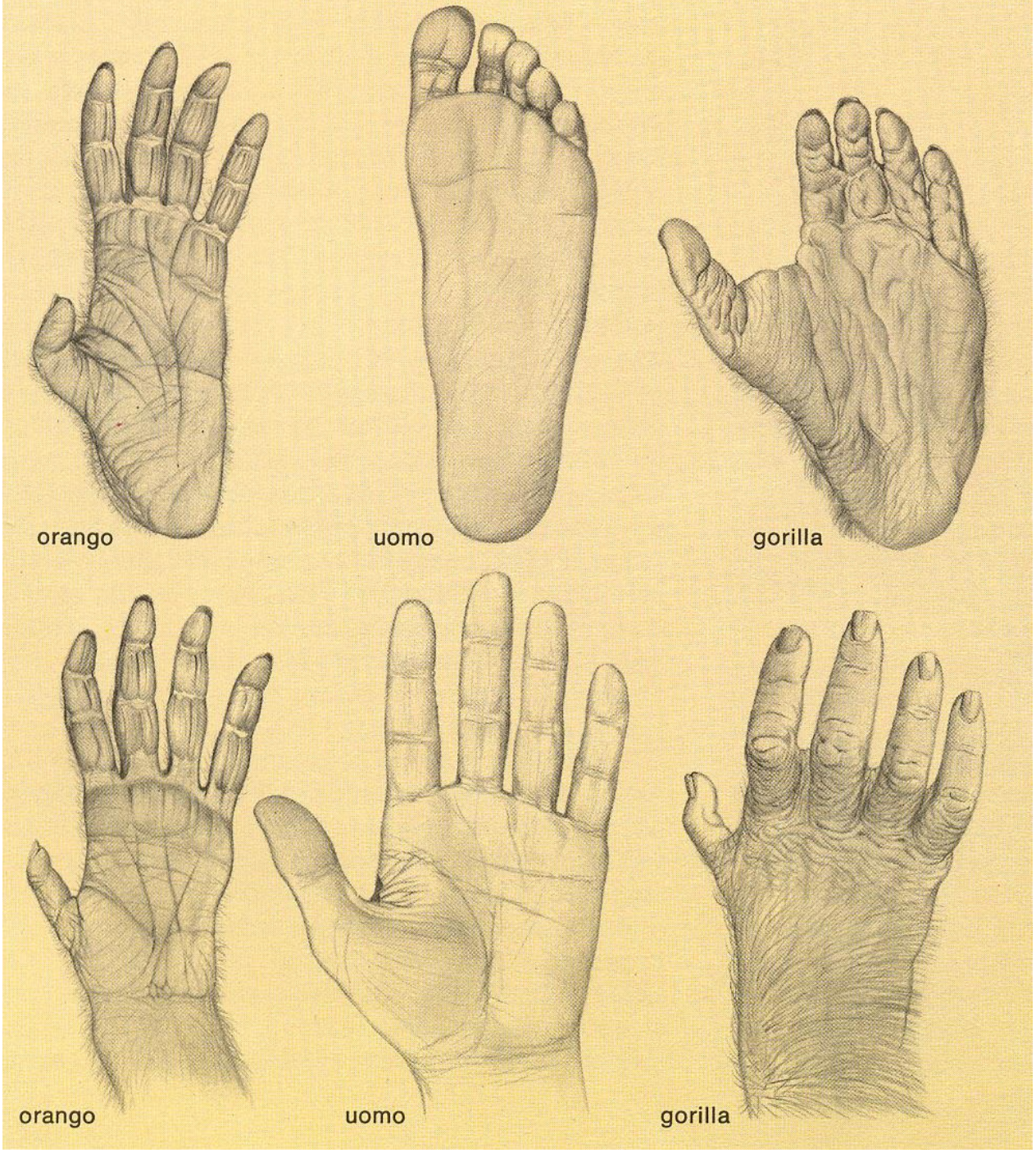

Galago
Tarsius
Leontocebus
Aotus
Saimiri
Cebus

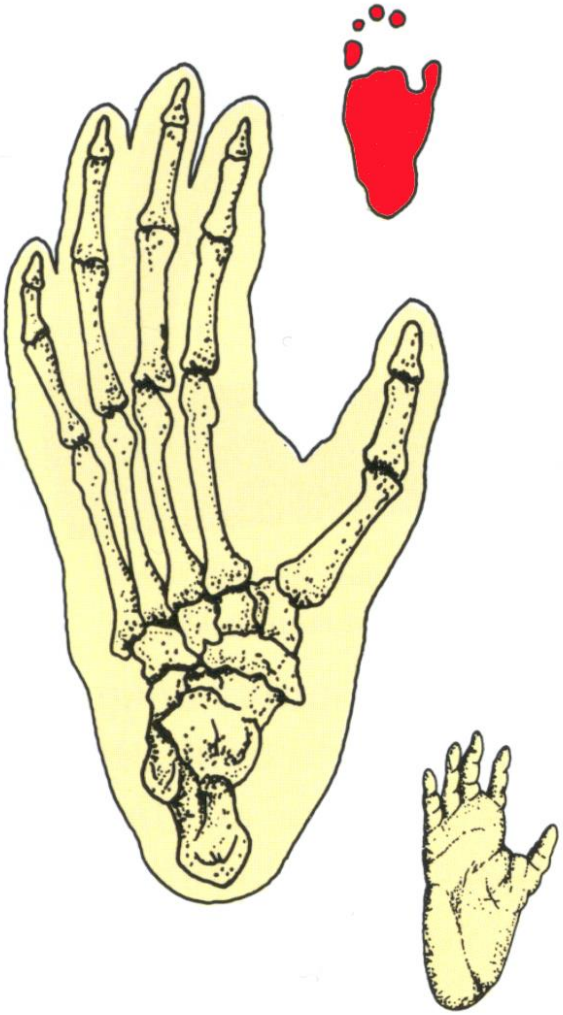

Ateles
Macaca
Papio
Cercopithecus
Presbytis
Nasalis
Colobus

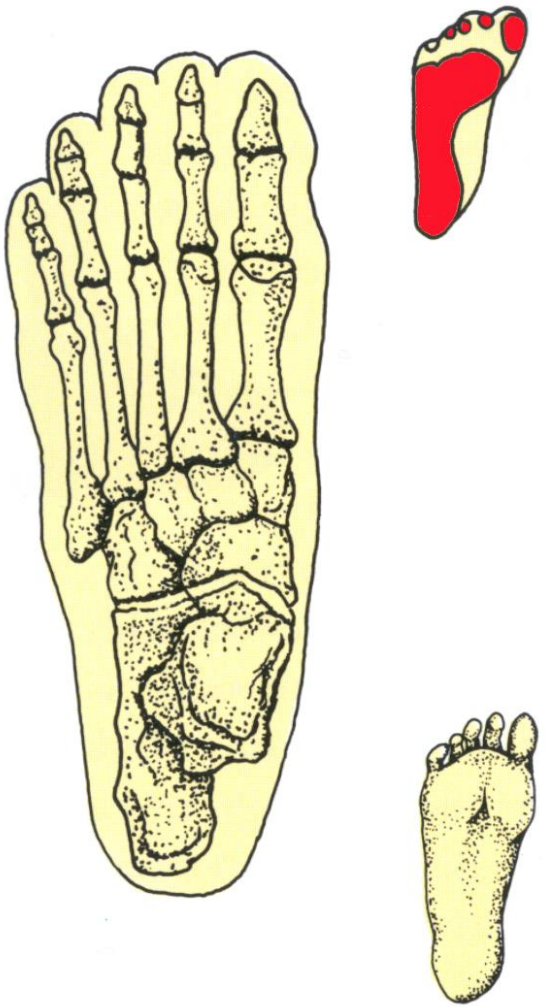

Ateles
Macaca
Papio
Cercopithecus
Presbytis
Colobus

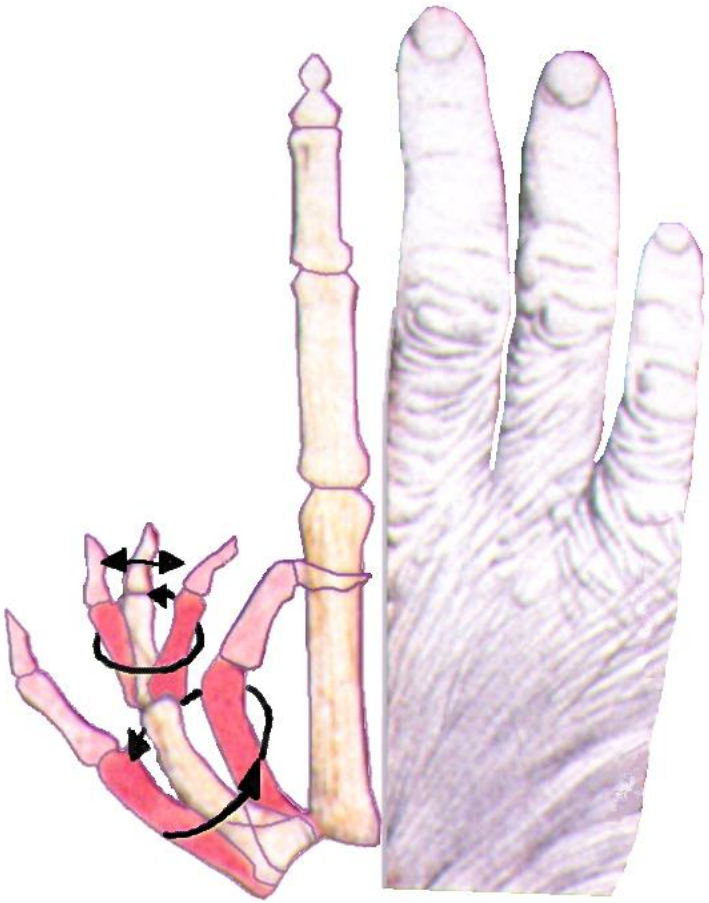

Hylobates
Pongo
Pan
Gorilla
Homo

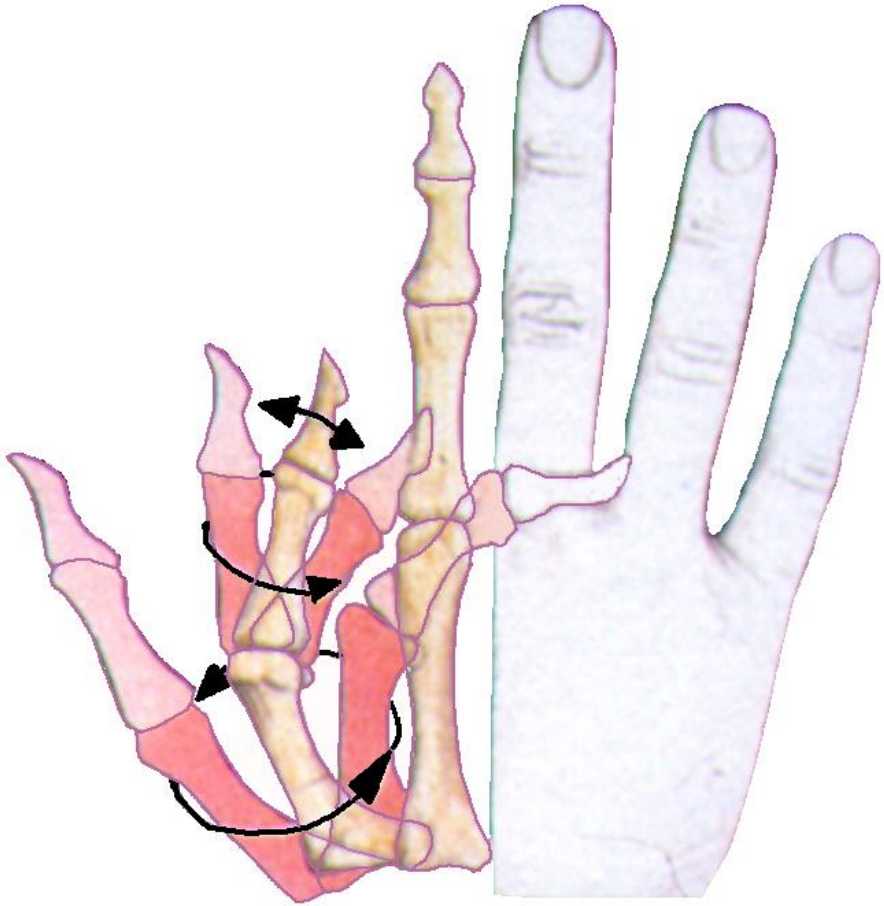

Hylobates
Pongo
Pan
Gorilla
Homo


orango
uomo
gorilla
orango
uomo
gorilla

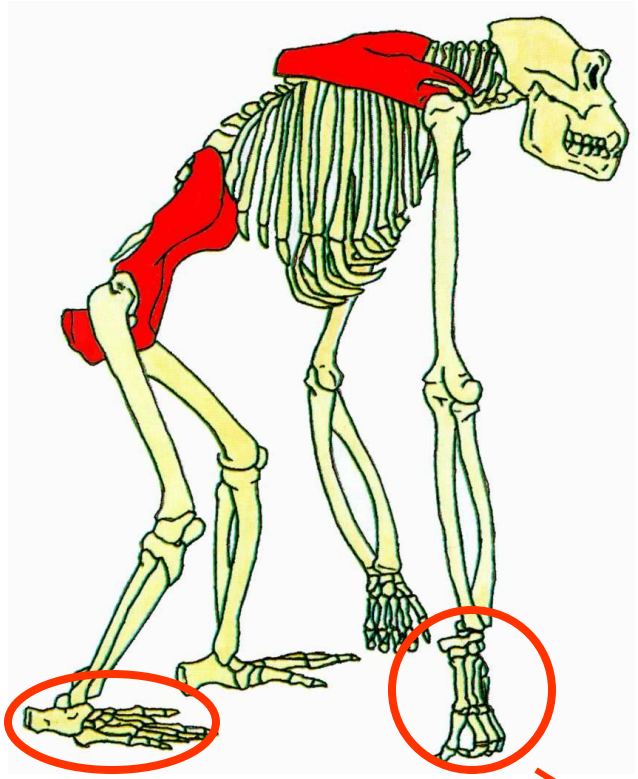


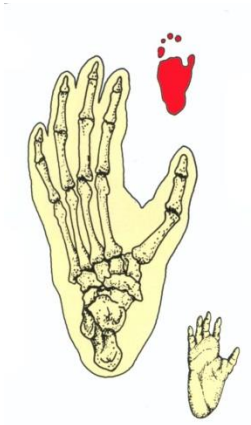


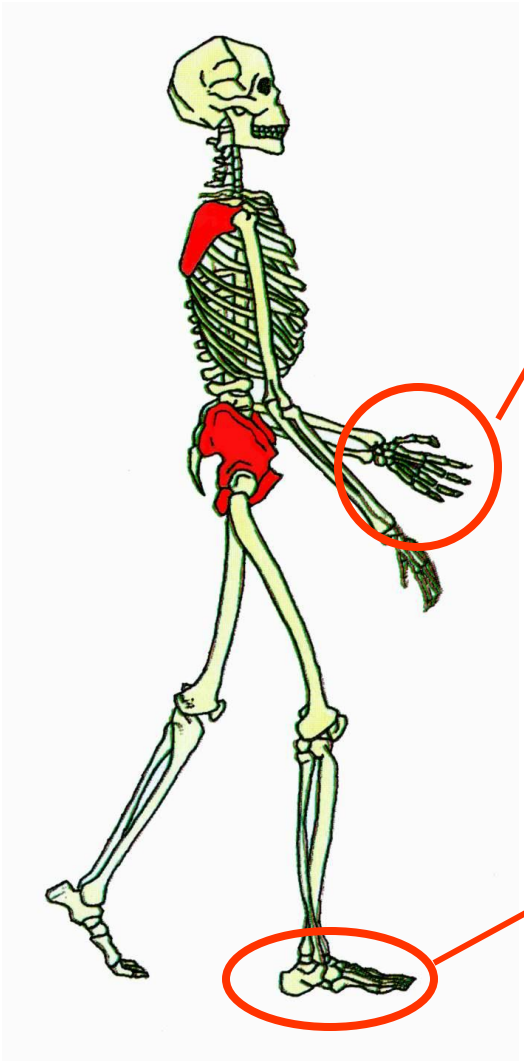


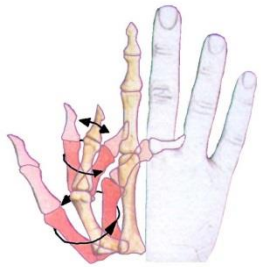


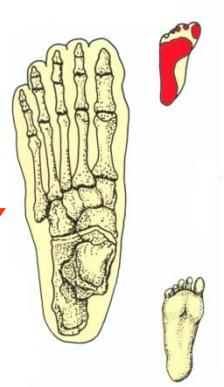
LA BIPEDIA: UN'INVENZIONE DELL'UOMO



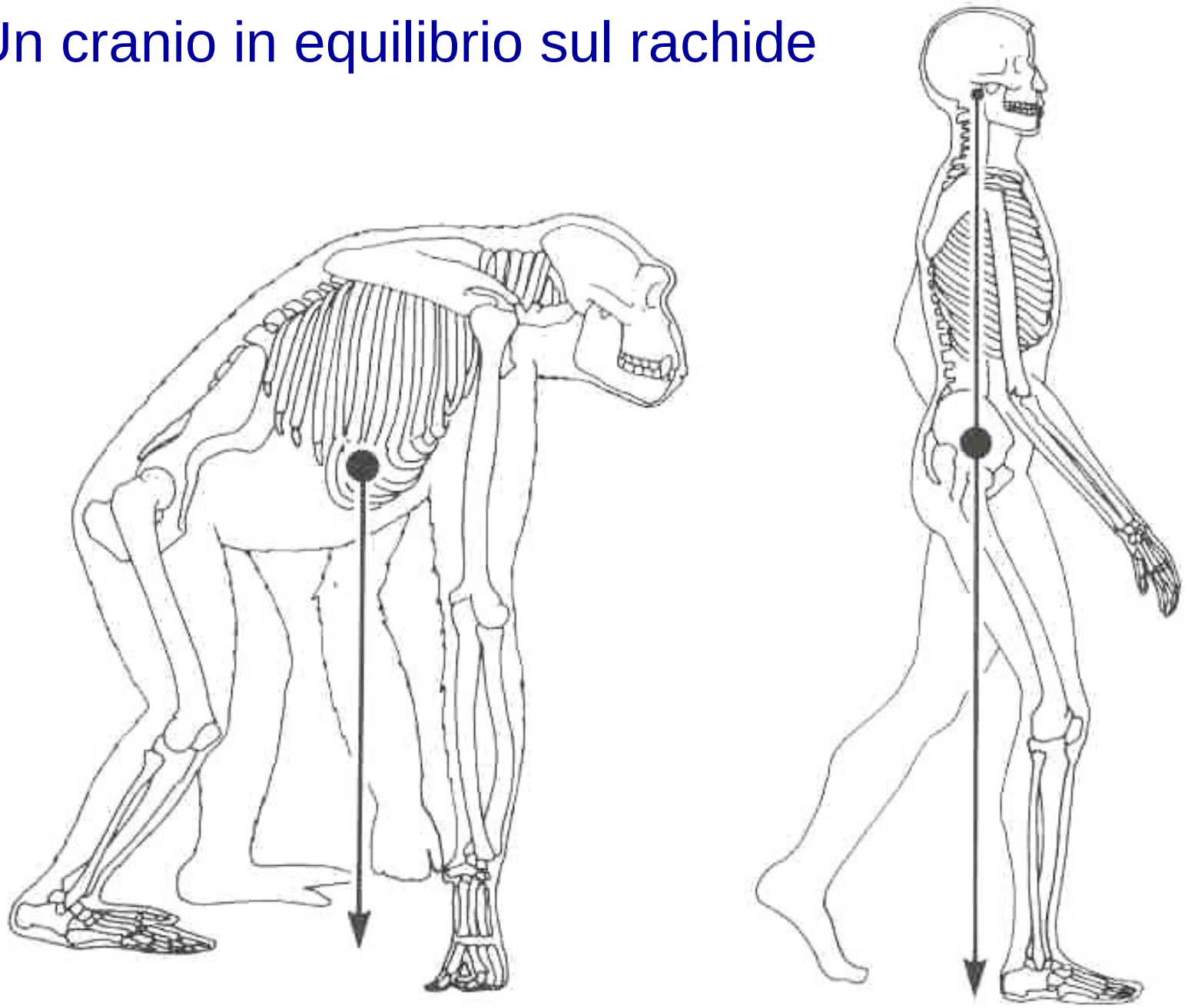




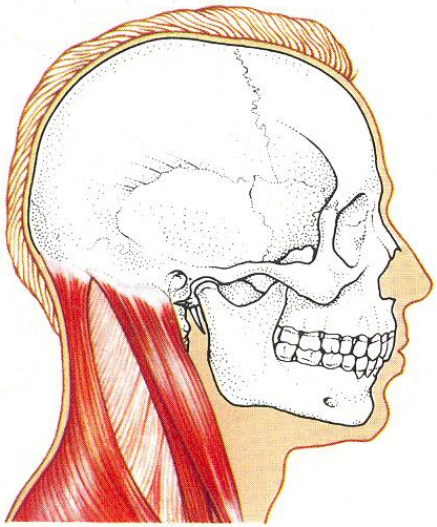




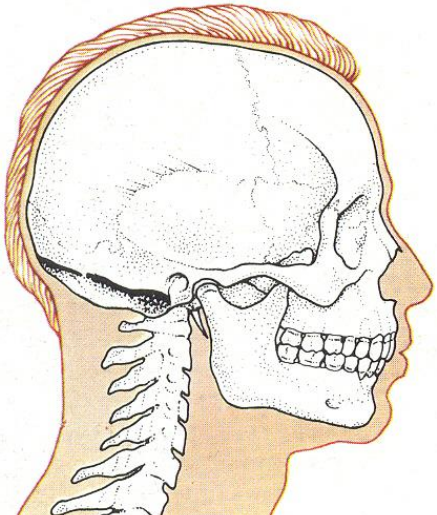
Un cranio in equilibrio sul rachide



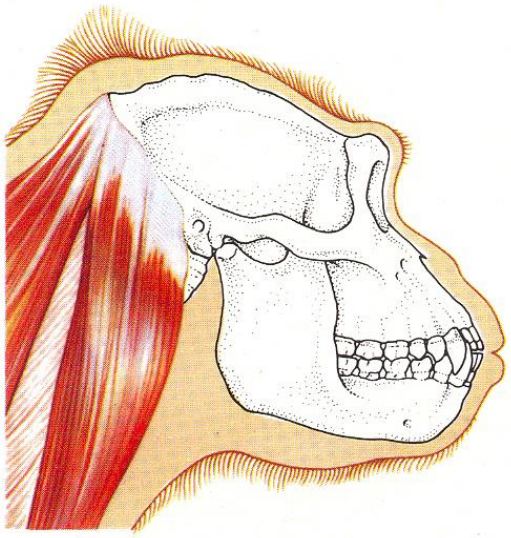
uomo



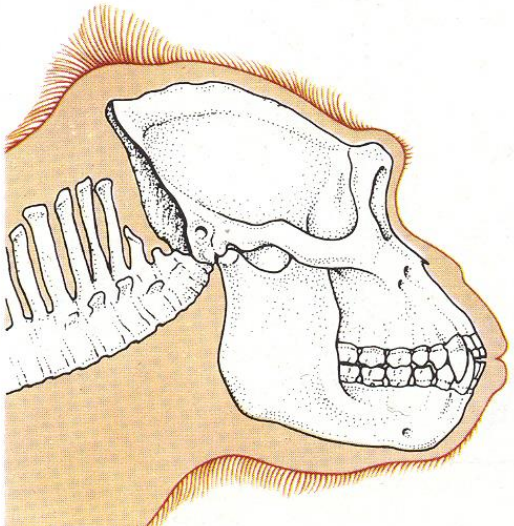
Gli esseri umani camminano eretti. La loro testa è ben bilanciata alla sommità della colonna vertebrale. La colonna vertebrale si congiunge col cranio verso il suo punto medio. I muscoli del collo che sostengono la testa sono piccoli e attaccati al cranio alquanto in basso.

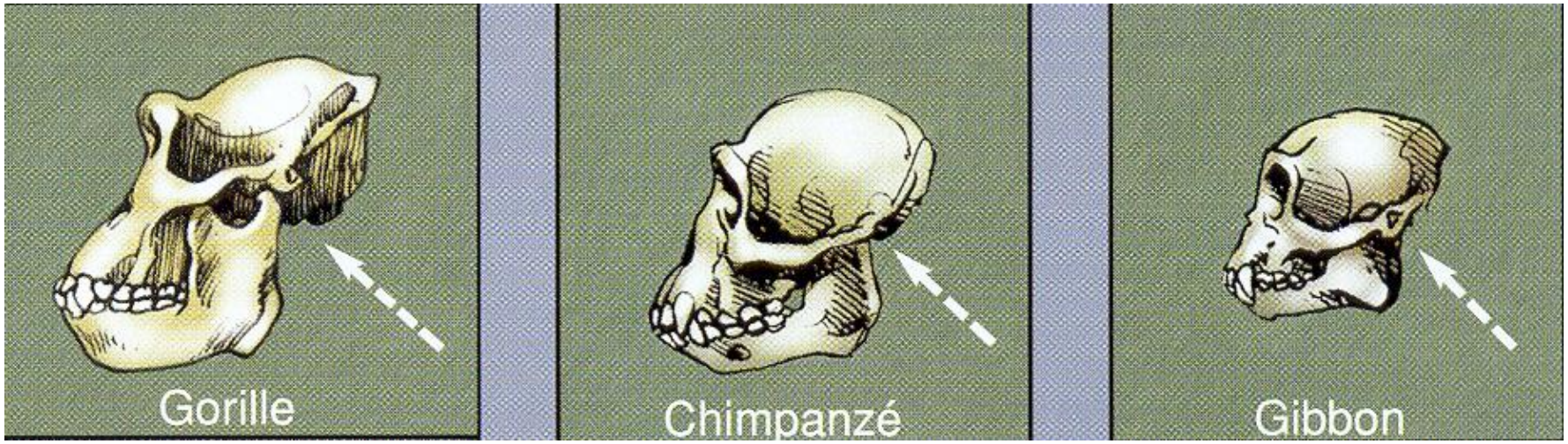


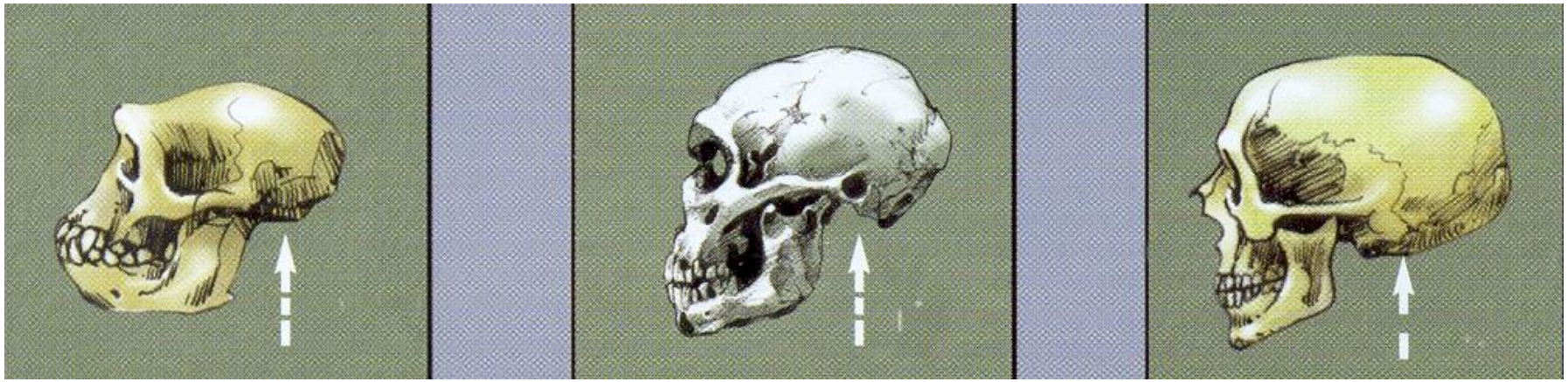
gorilla

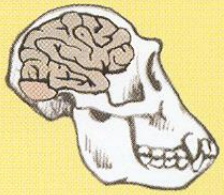


La colonna vertebrale del gorilla si congiunge col cranio verso la parte posteriore, e la testa ha bisogno di un sostegno molto maggiore. I muscoli del collo sono larghi e forti e sono attaccati abbastanza in alto sul cranio.



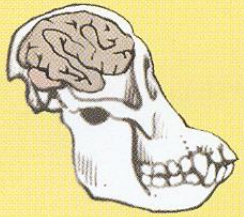

Gorille
Chimpanzé
Gibbon



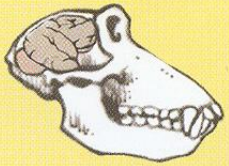


CHIMPANZÉ : 380 cm³

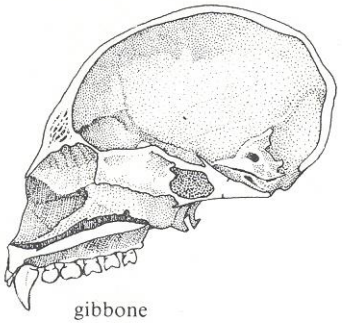
GORILLE : 500 cm³



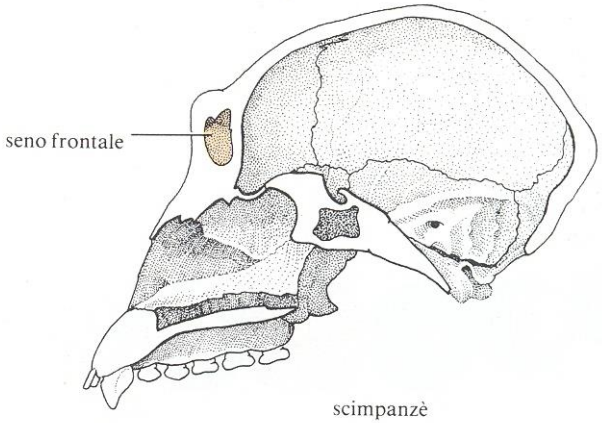
ORANG-OUTAN : 450 cm³



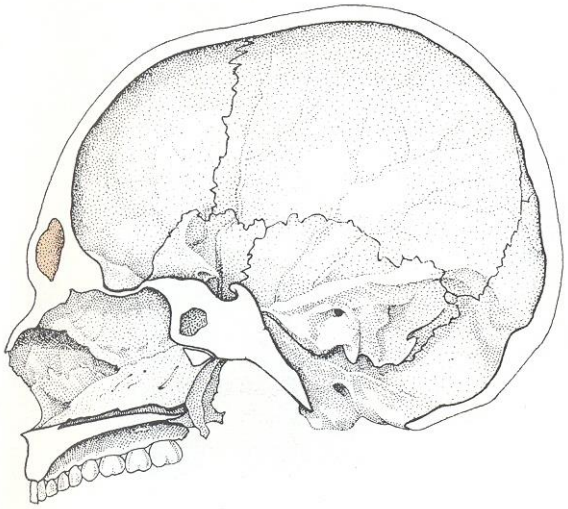
BABOUIN : 200 cm³



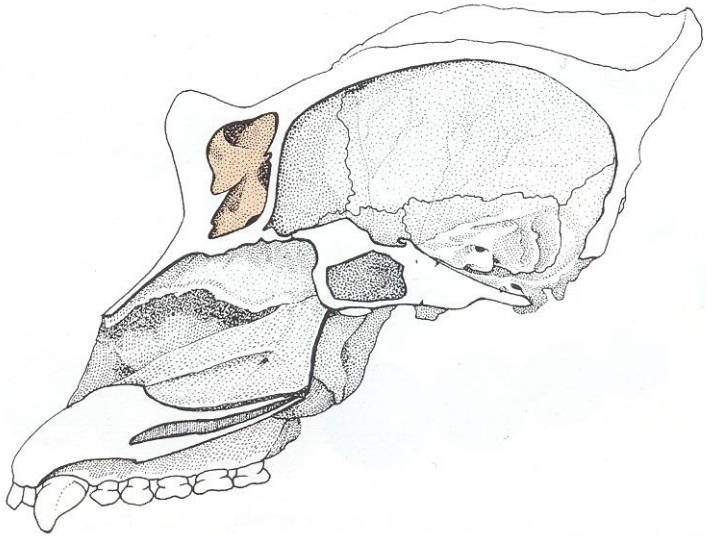
gibbone



scimpanzè

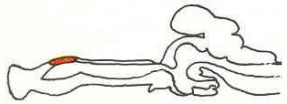


uomo



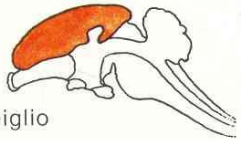
gorilla

Seni frontali

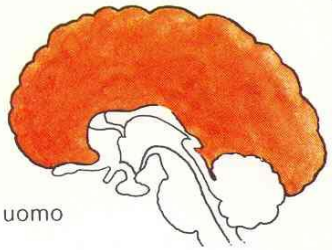


pesce

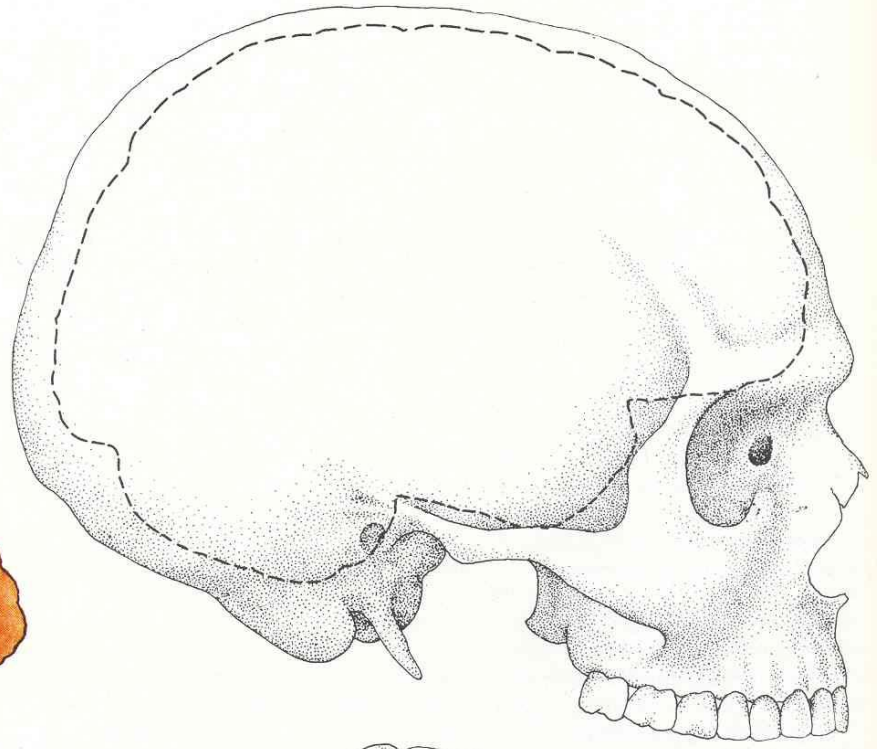
rettile



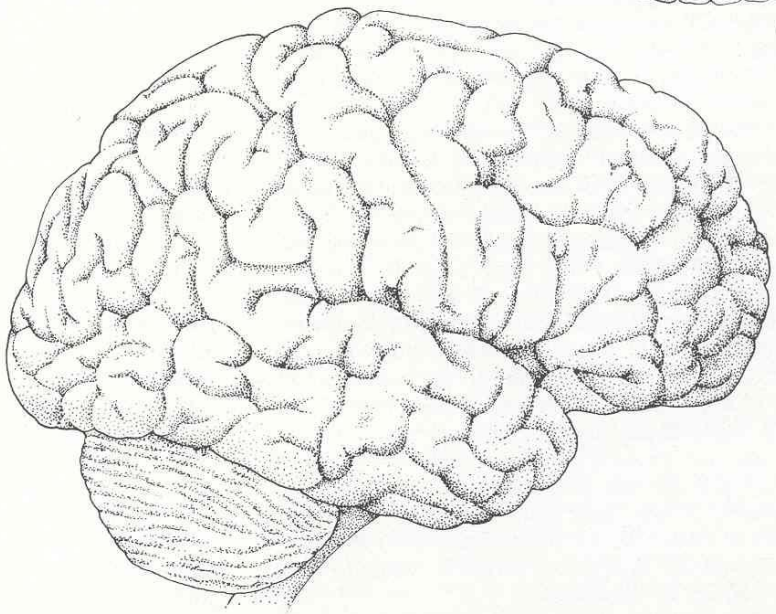
coniglio



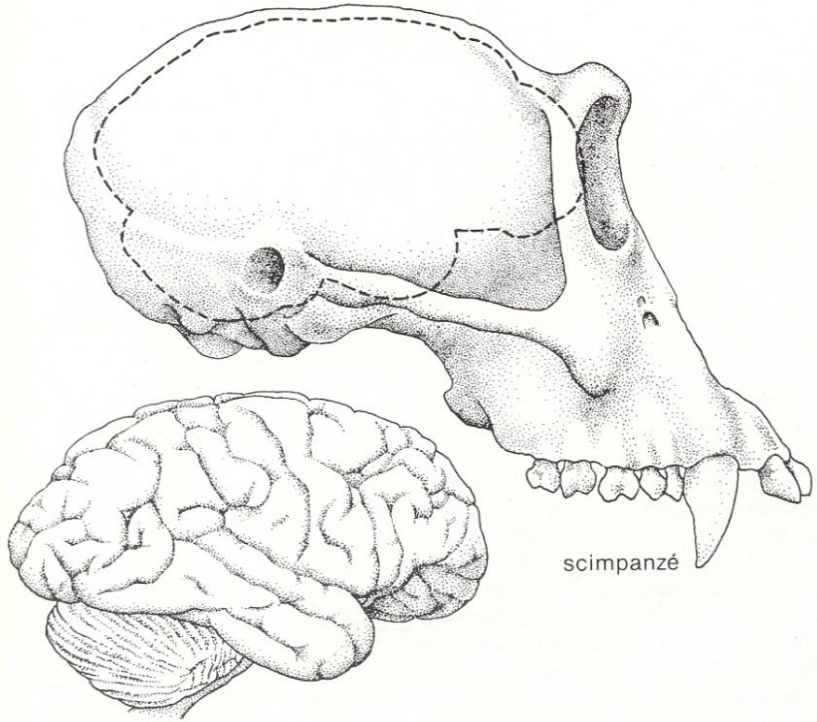
uomo



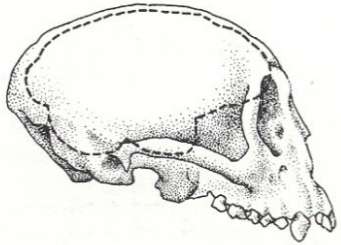
uomo



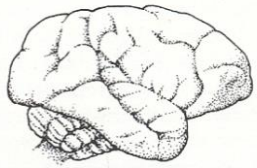
La storia evolutiva del cervello dei vertebrati è marcata dall'espansione della corteccia cerebrale e dalla sua crescente complessità (indicata schematicamente qui sopra). Questo allargamento supera quello delle altre parti del cervello che sono rimaste praticamente delle stesse dimensioni, ed è particolarmente evidente nei mammiferi superiori e specialmente nell'uomo.



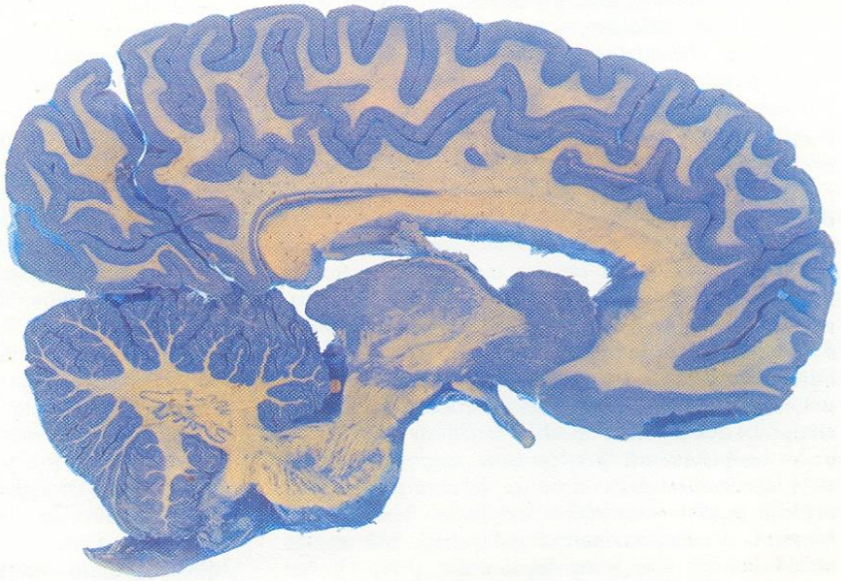
scimpanzé

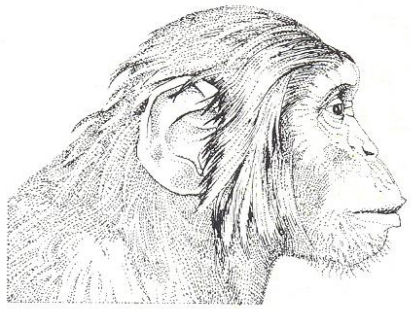


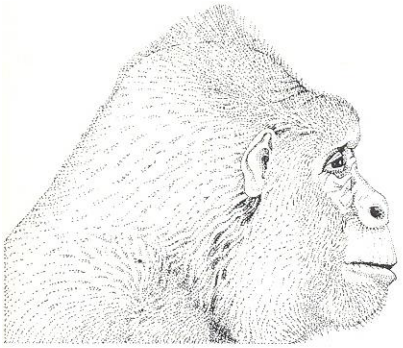
scimmia platirrina



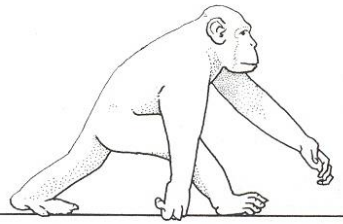
Non solo il cervello umano è molto più grande di quello di una scimmia inferiore o di uno scimpanzé, ma le circonvoluzioni della sua corteccia occupano anche un'area molto più estesa. Le linee tratteggiate nei crani indicano le corrispondenti dimensioni dei cervelli, mentre il disegno della corteccia cerebrale, non in scala, illustra l'accrescimento delle circonvoluzioni nel corso dell'evoluzione. La profondità delle circonvoluzioni della corteccia è indicata in questa sezione a colori del cervello umano.

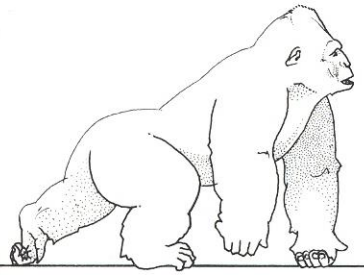




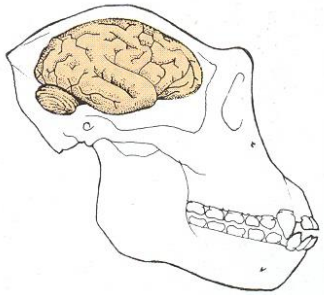


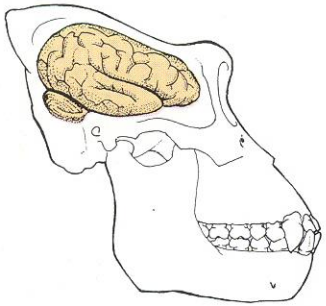
• hanno il viso molto corto - faccia piatta,

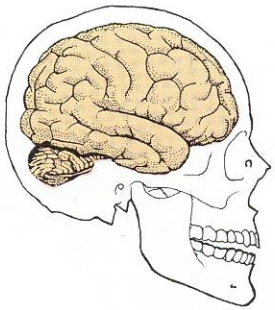


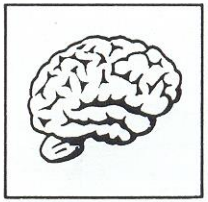


• camminano eretti su due gambe,

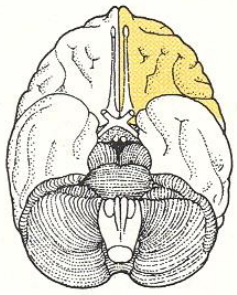




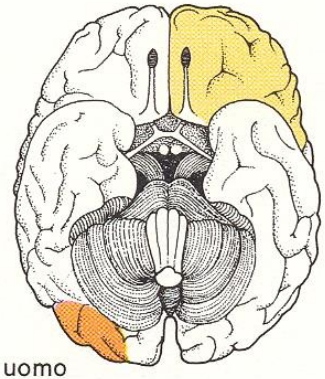




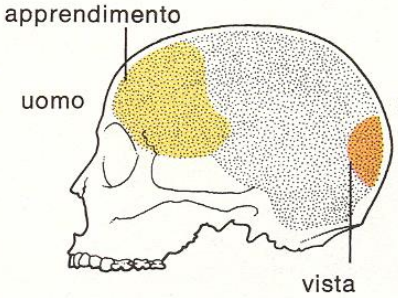
• ed hanno il cervello grosso.

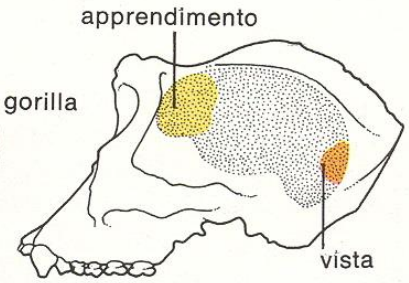


gorilla

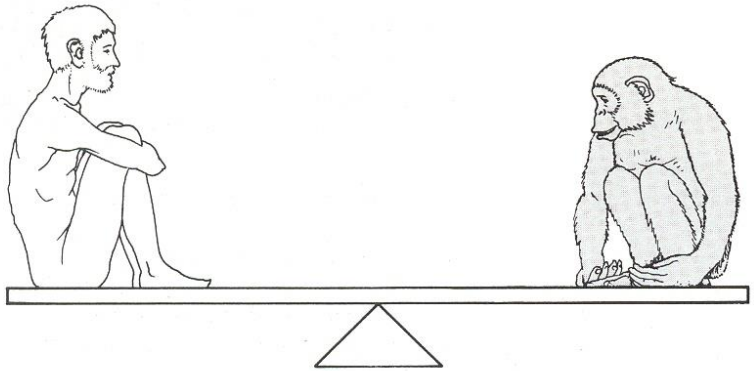


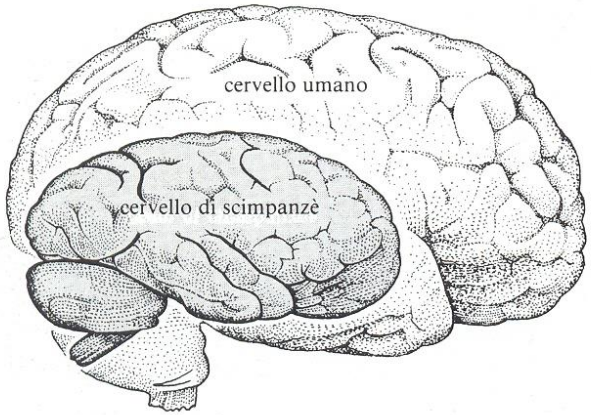
uomo

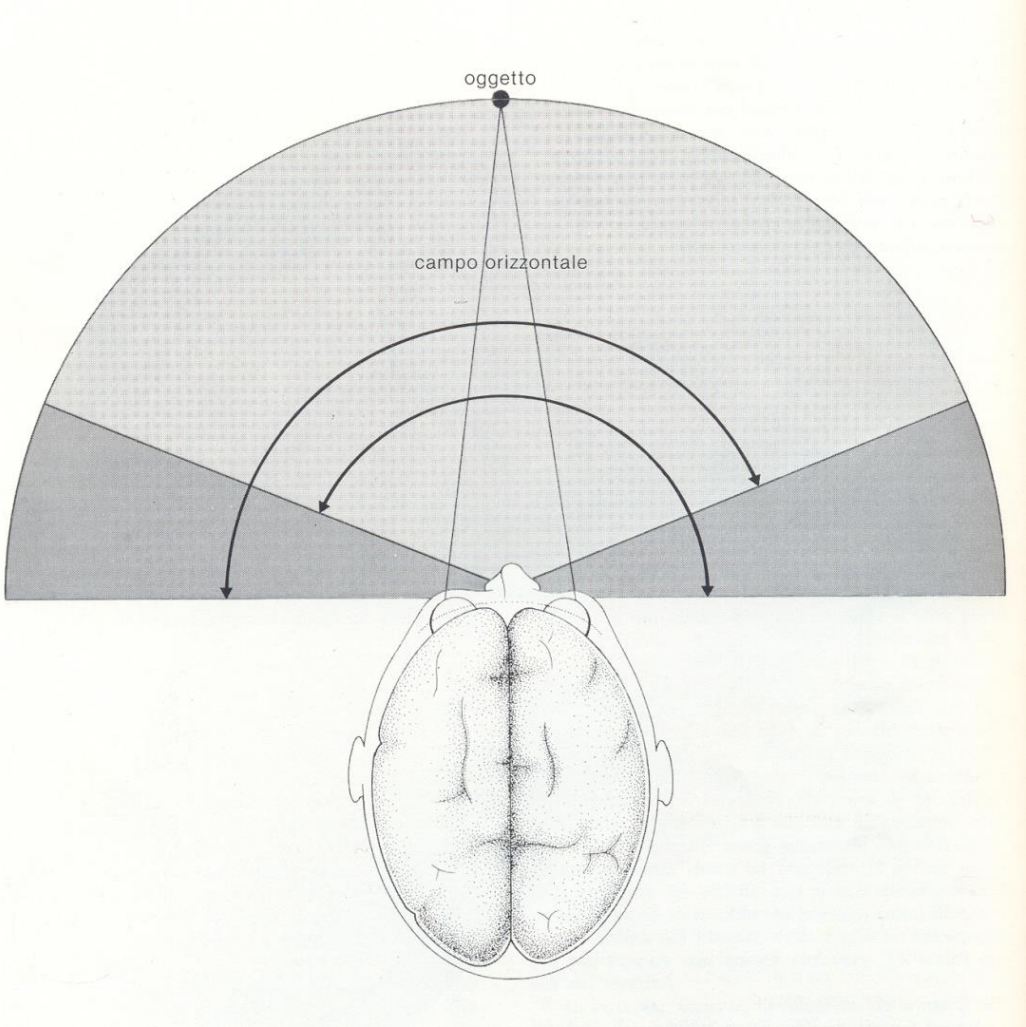




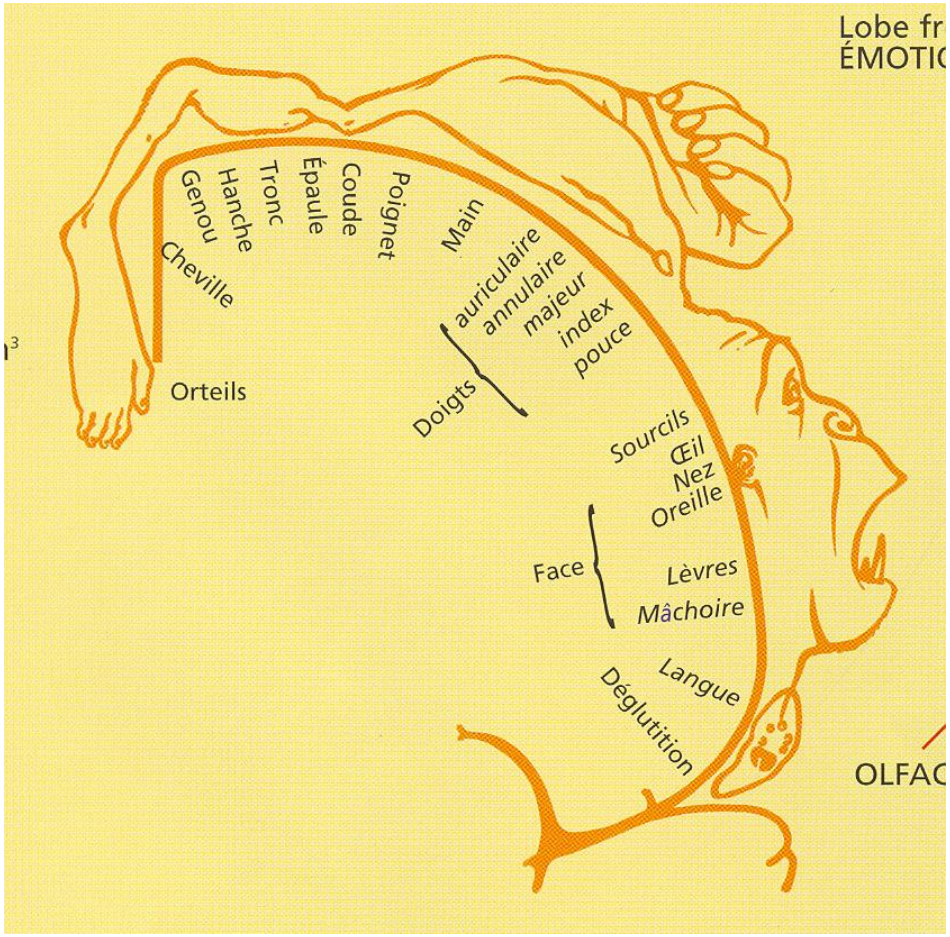
Il cervello dell'uomo non solo è più grosso di quello del gorilla, è anche organizzato in modo diverso. Le aree frontali e parietali che interessano l'apprendimento il comportamento sociale e la vista sono differentemente sviluppate.

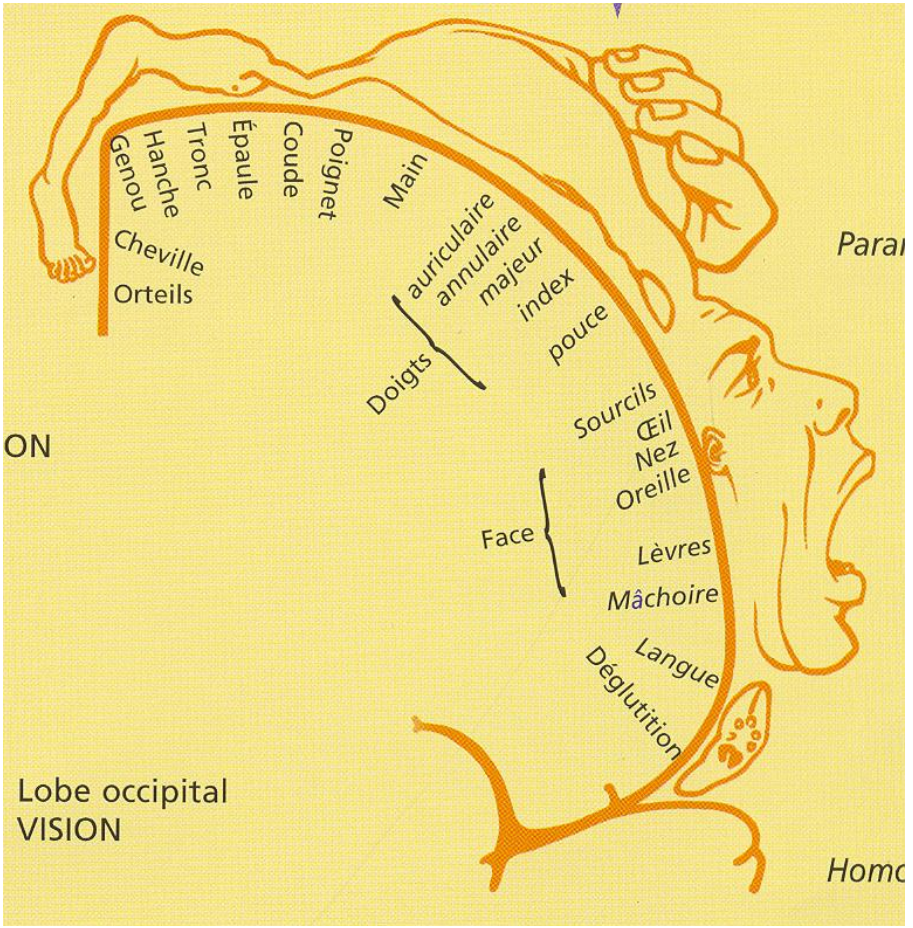


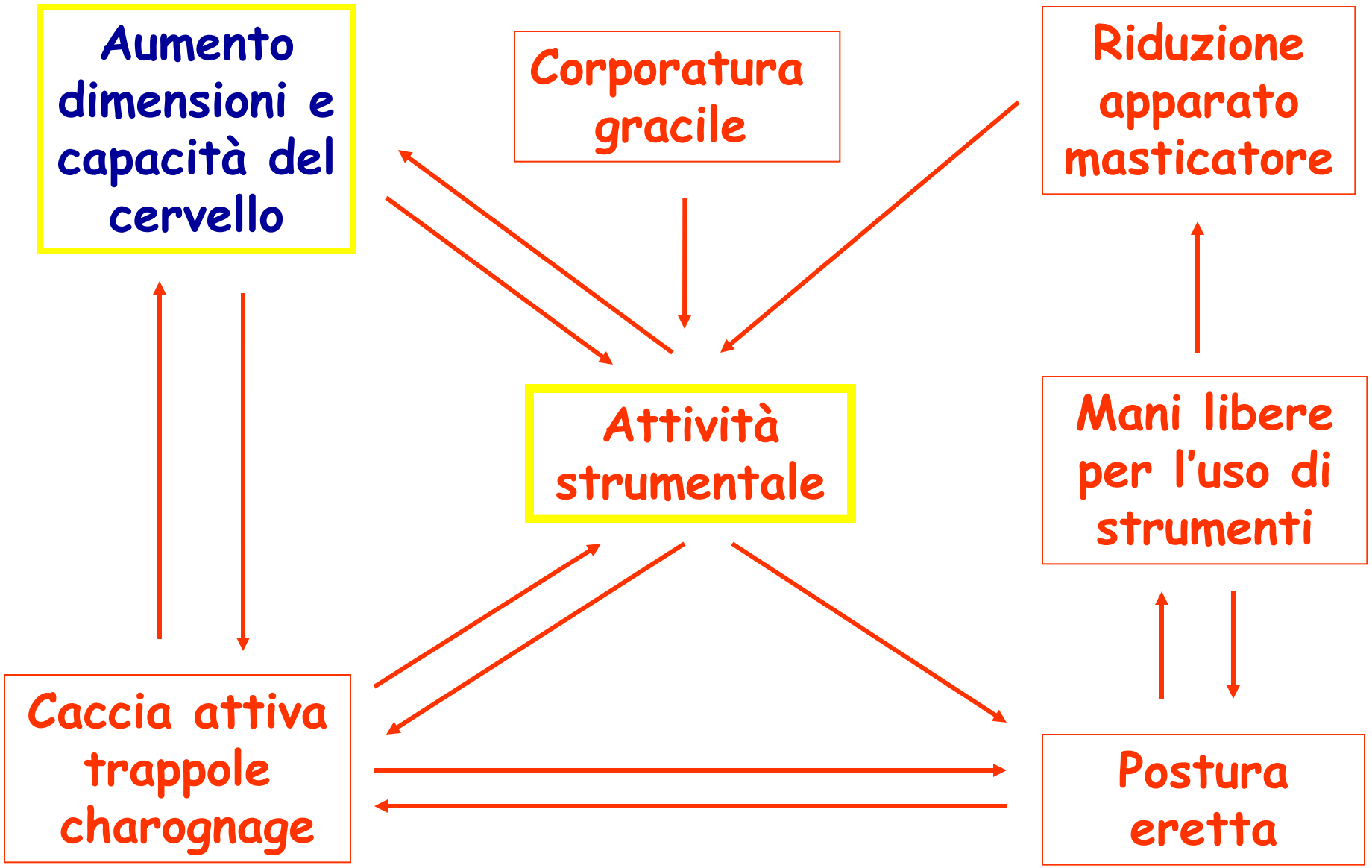




Vista stereoscopica


Lobe fr
ÉMOTIC
Cheville
Genou
Hanche
Tronc
Épaule
Coude
Poignet
Main
auriculaire
annulaire
majeur
index
pouce
Doigts
Orteils
Sourcils
Œil
Nez
Oreille
Face
Lèvres
Mâchoire
Langue
Déglutition
OLFAC

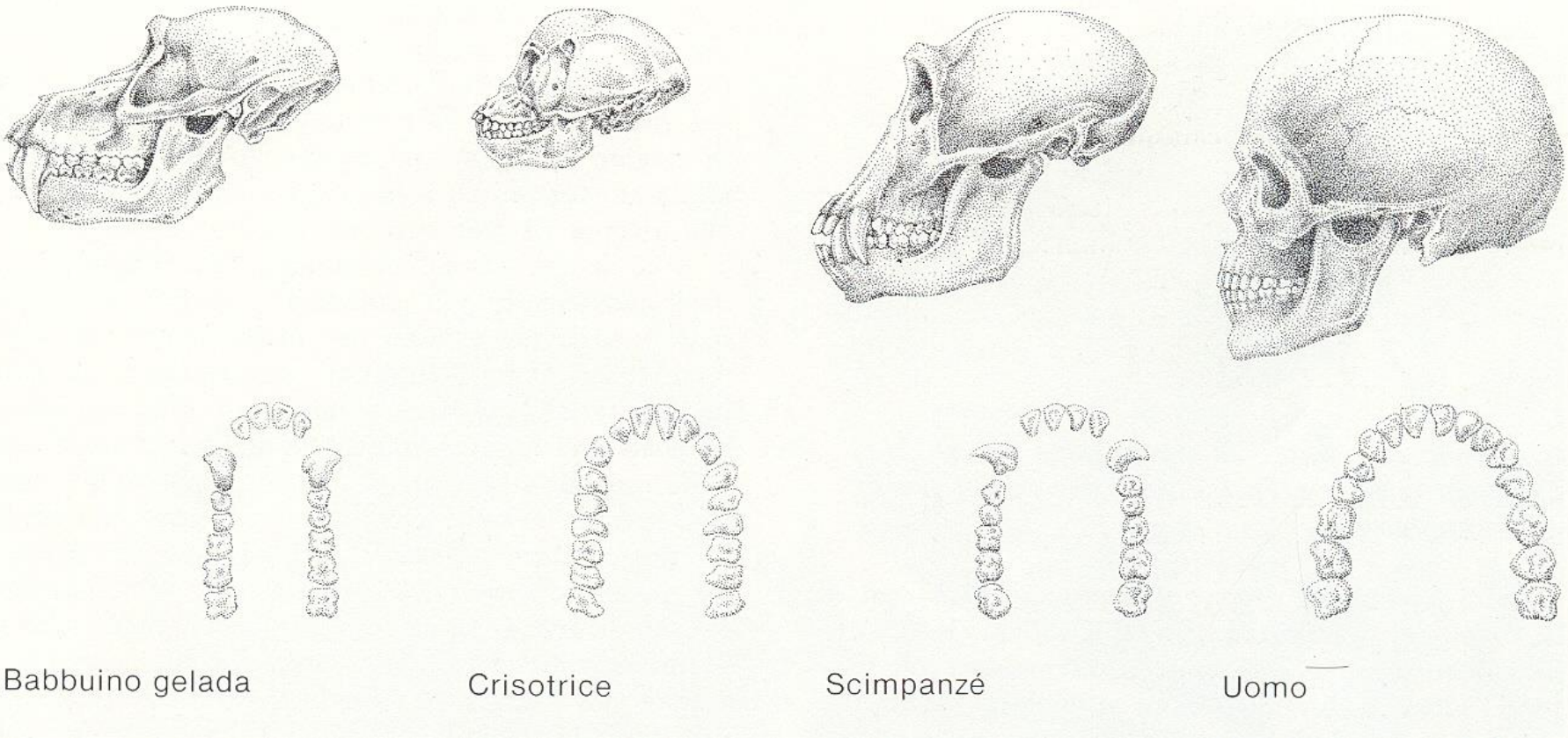

Cheville
Genou
Hanche
Tronc
Épaule
Coude
Poignet
Main
auriculaire
annulaire
majeur
index
pouce
Doigts
Orteils
Sourcils
Œil
Nez
Oreille
Face
Lèvres
Mâchoire
Langue
Déglutition
ON
Lobe occipital
VISION
Homo

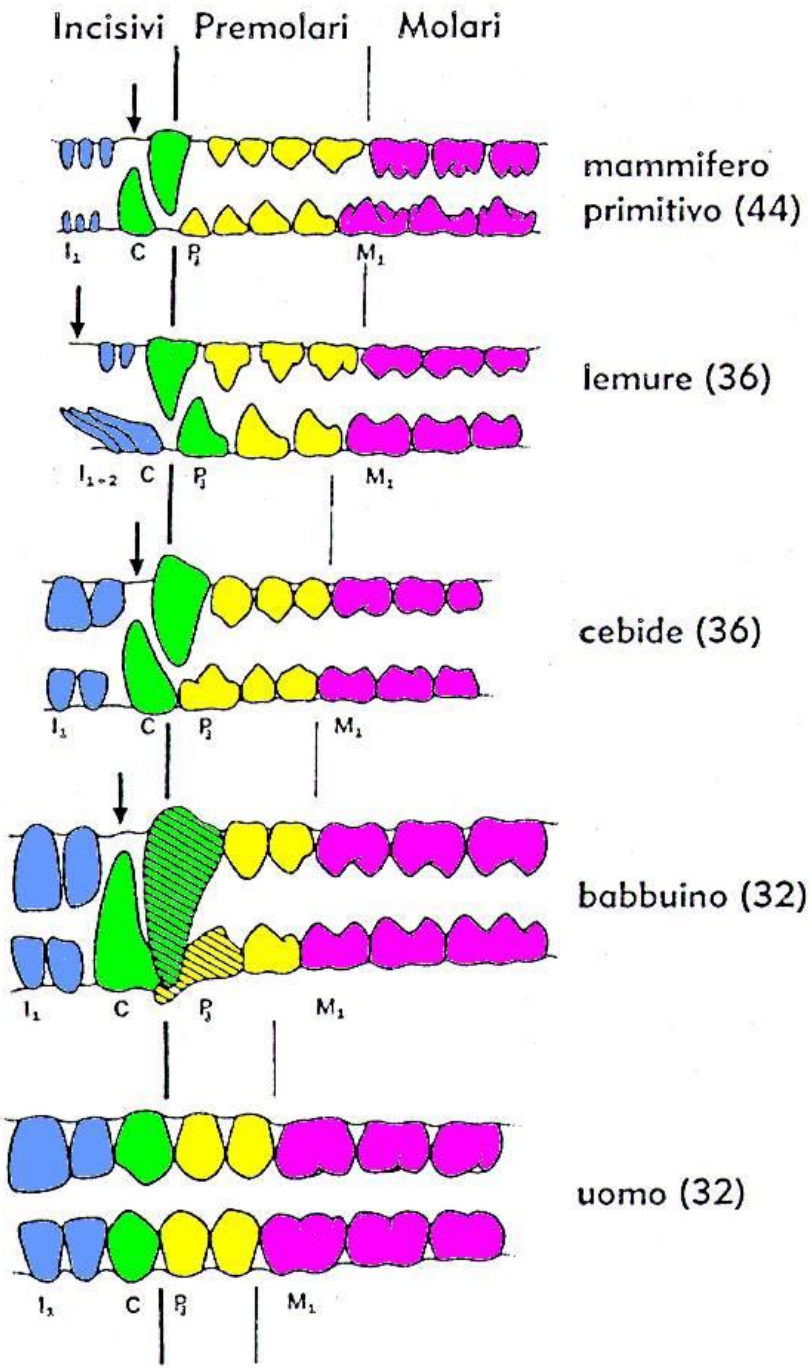

Aumento dimensioni e capacità del cervello
Corporatura gracile
Riduzione apparato masticatore
Attività strumentale
Mani libere per l'uso di strumenti
Caccia attiva trappole charognage
Postura eretta

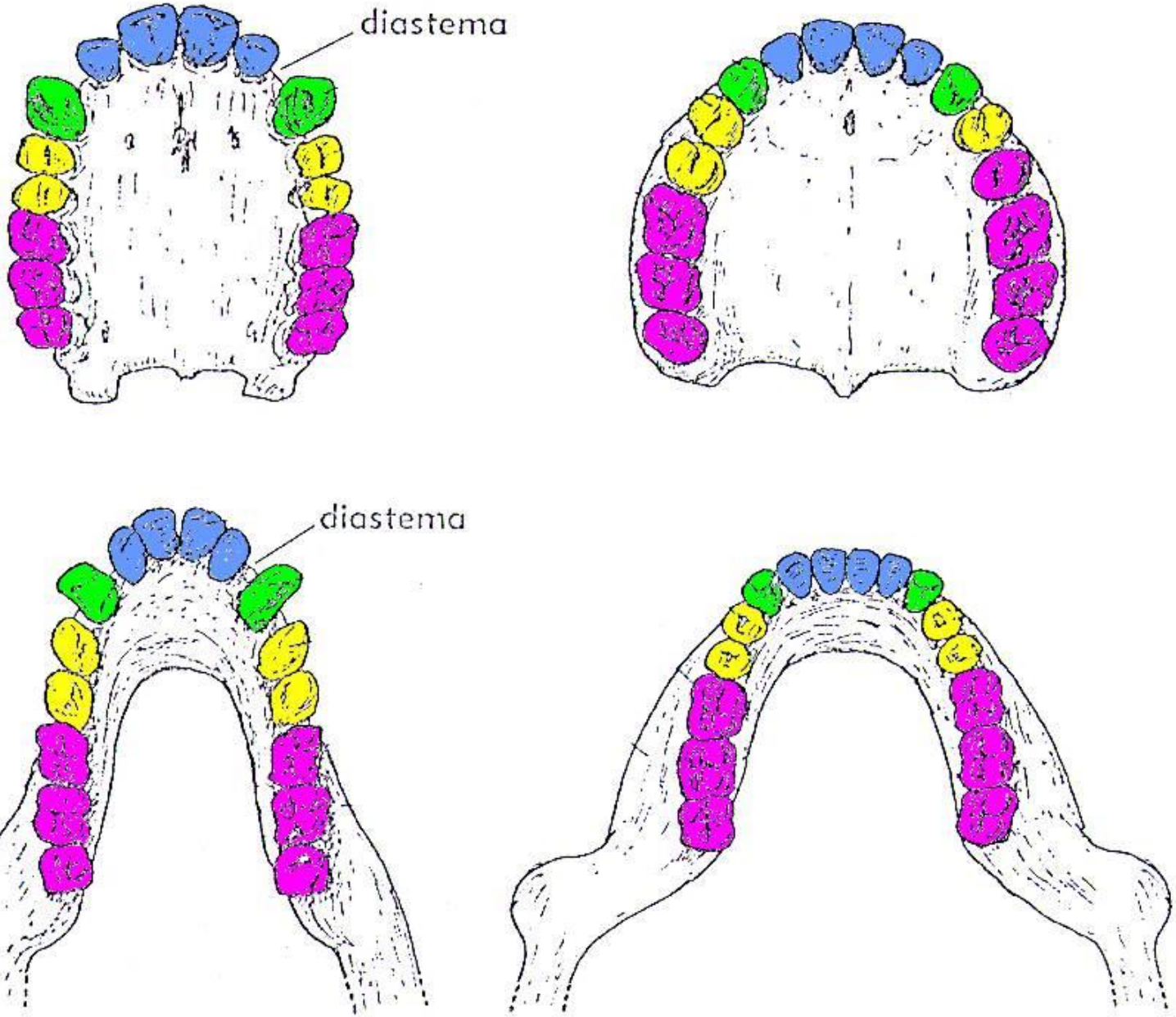

4554.
4554
Heidenheim / Brenz
4554

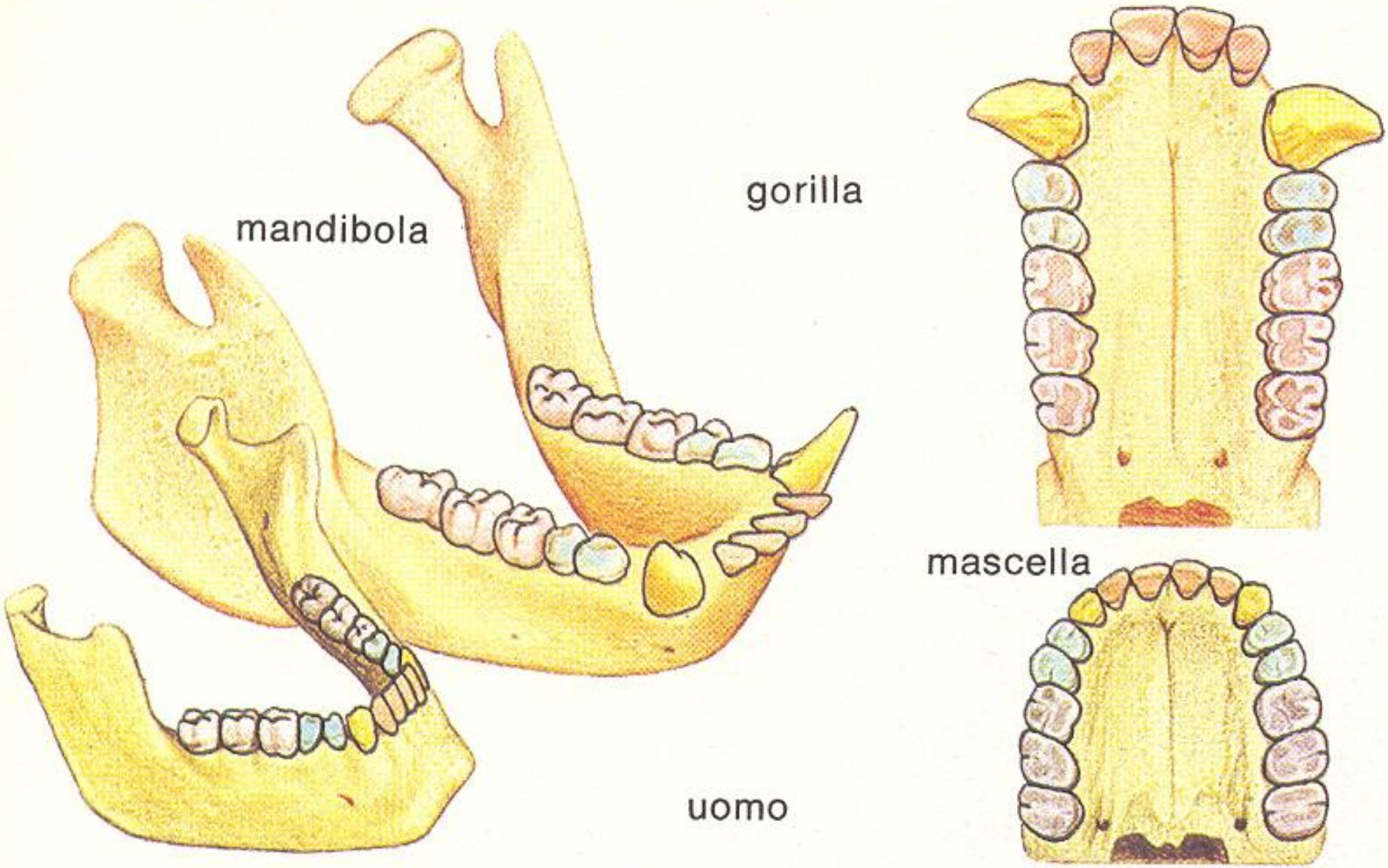

1 cm


48/804

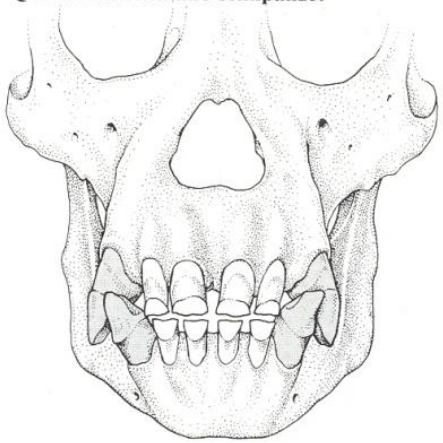

Babbuino gelada
Crisotrice
Scimpanzé
Uomo

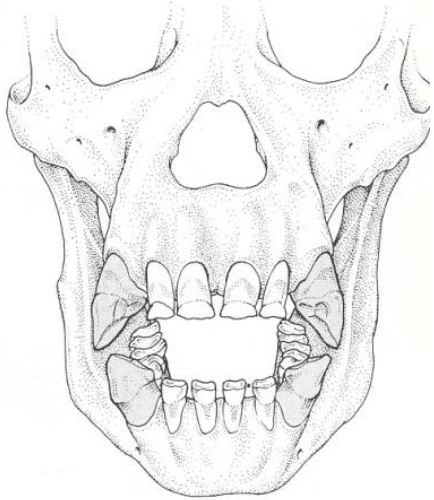

Incisivi
Premolari
Molari
mammifero primitivo (44)
I1
C
P3
M1
lemure (36)
I1-2
C
P3
M1
cebide (36)
I1
C
P3
M1
babbuino (32)
I1
C
P3
M1
uomo (32)
I1
C
P3
M1


diastema
diastema

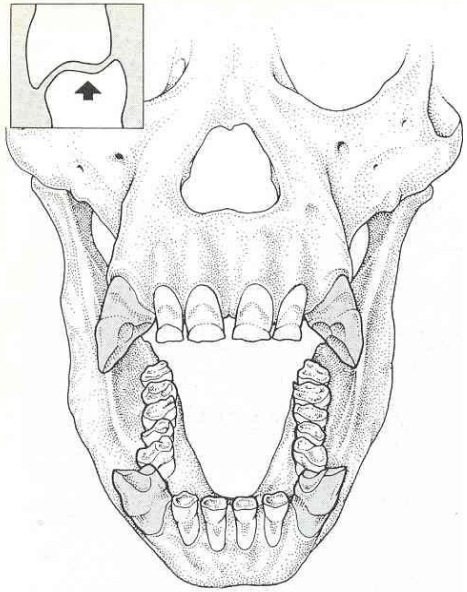

gorilla
mandibola
mascella
uomo

Quando mastica uno scimpanzè:



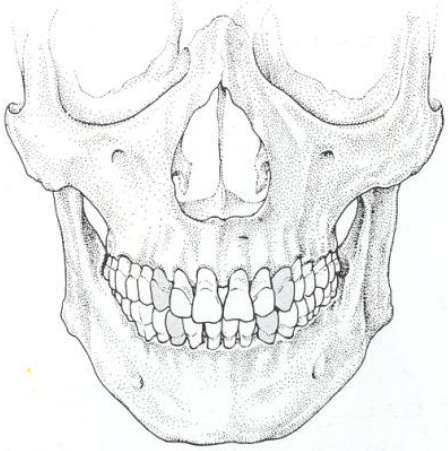


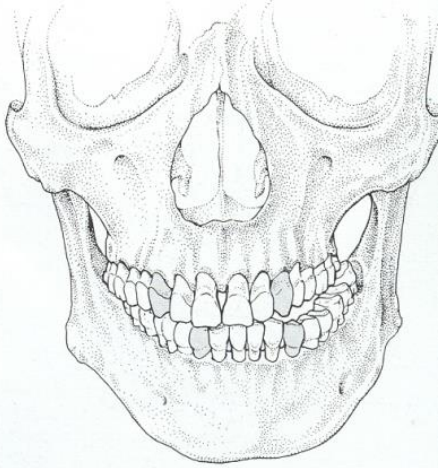
- i suoi canini, che sono piú grandi, si sovrappongono ed impediscono il movimento laterale
- cosí le mascelle si muovono su e giú



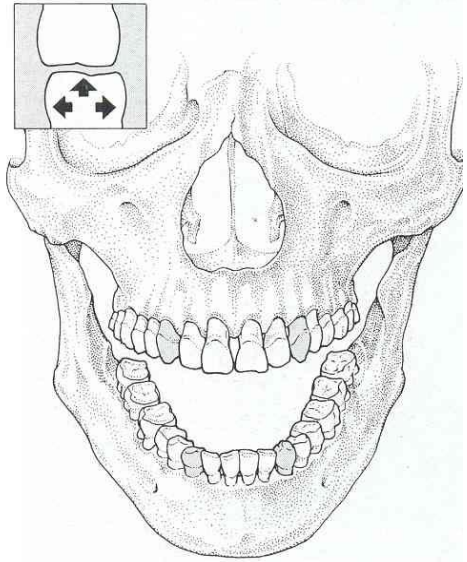
- i molari combaciano tutti contemporaneamente, perché sono disposti lungo due file diritte
- i molari si consumano in maniera irregolar

Quando mastica un essere umano:



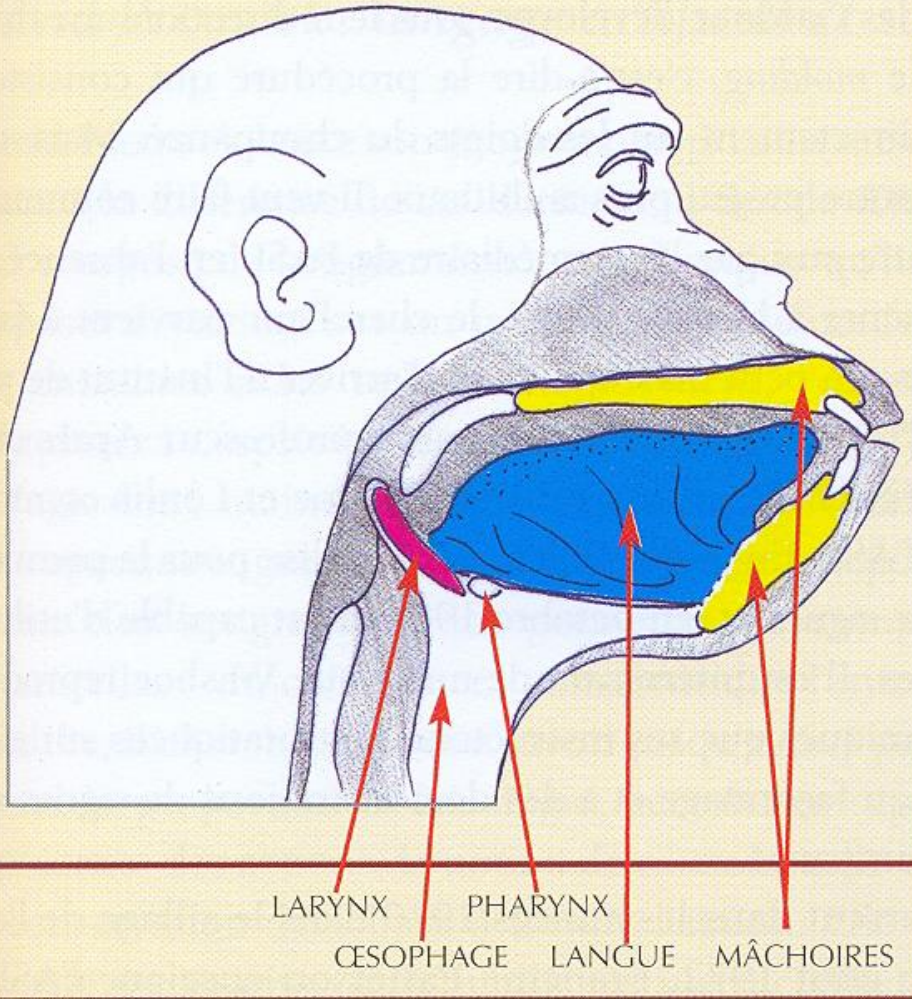


- i canini non si sovrappongono
- cosí le mascelle possono muoversi lateralmente

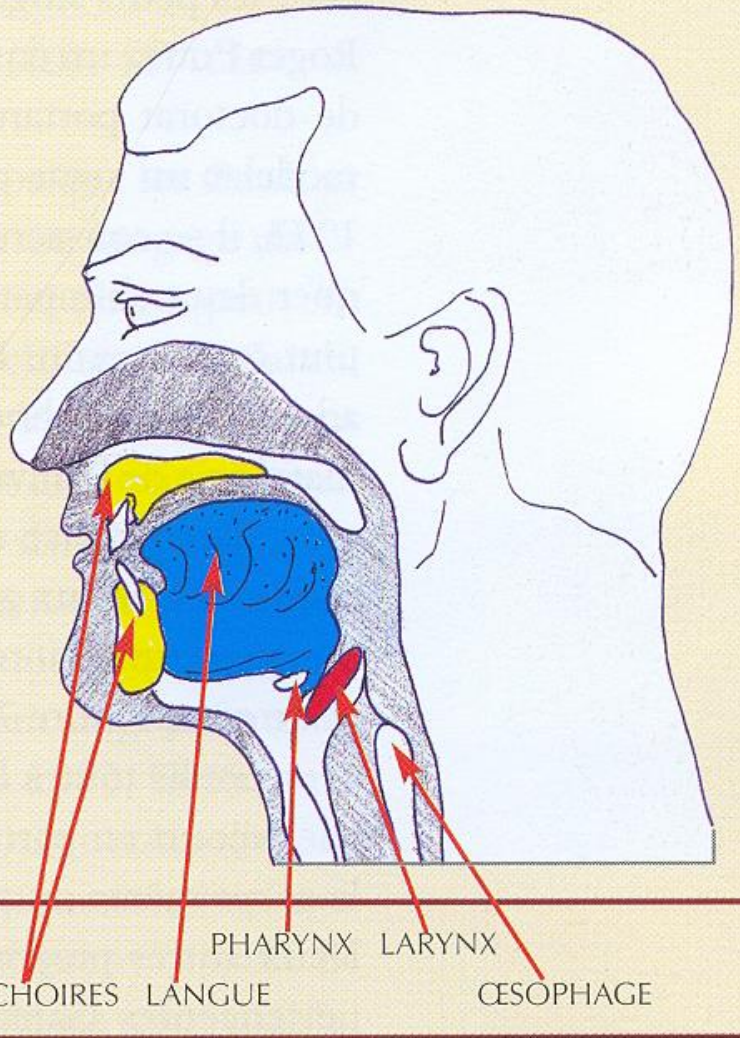


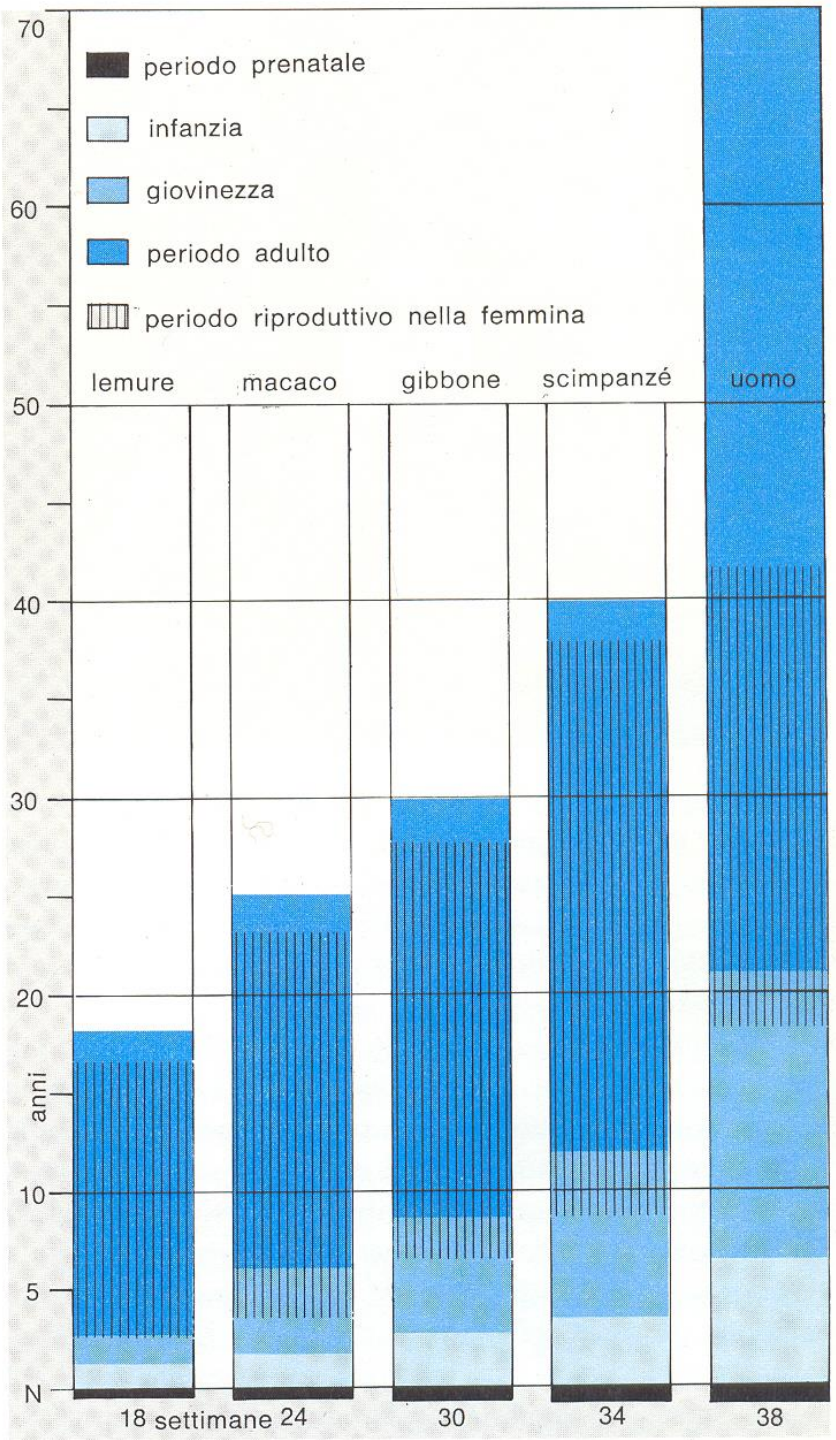
- i molari si consumano appiattendosi

CHIMPANZÉ



HOMME




70
60
50
40
30
20
10
5
N
anni
periodo prenatale
infanzia
giovinezza
periodo adulto
periodo riproduttivo nella femmina
lemure
macaco
gibbone
scimpanzé
uomo
18 settimane
24
30
34
38