

Universal Terminology

CHAPTER 4 : SUMMARY OF PARTONOMY

This chapter summarizes, chapter by chapter, the content of partonomy as presented in the book.

An overview of partonomy is presented first. The division into 18 chapters, based on the systems of the human body, is described, highlighting its key points.

The remainder of the document devotes a section to each chapter. For each chapter, an explanation is provided regarding the rationale behind its sub-chapters and further subdivisions. Quantitative documentation is also presented graphically.

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Chapter	#
corpus humanum	319
systema skeletale	1839
systema articulare	981
systema musculare	965
systema digestorium	448
dentitio	220
systema respiratorium	274
systema urinarium	99
systema genitale femininum	155
systema genitale masculinum	174
systema trunci	180
glandulae endocrinae	44
systema cardiovasculare	1785
systema lymphaticum	233
systema nervosum centrale	2567
systema nervosum periphericum	1056
organa sensoria	759
integumentum commune	74

Table 4.1: List of the 18 chapters of the $\mathbf{T}_{logy}$. Each chapter is given with the number of units parts of it. The values have been collected in August 2026.

4.1 The partonomic hierarchy

The present terminology is based on two main hierarchies: taxonomy and partonomy. Each of these hierarchies is extensively documented elsewhere. For a general introduction, see the [chapter 7](#). For taxonomy, see the [chapter 12](#), and for partonomy, see the [chapter 13](#).

This section introduces the partonomic hierarchy in terms of its content: how is the human body divided into the number of systems commonly found in anatomy? This division results in 18 chapters intended to cover the entirety of the human body from the perspective of gross anatomy. Extensions are always possible to cover certain specialties such as histology or embryology, but are not part of the $\mathbf{T}_{logy}$. The table [4.1](#) is an overview of all chapters of the $\mathbf{T}_{logy}$.

Anatomy has always distinguished systems within the human body, each oriented by a primary function which serves to define it. Typically, the [urinary system](#) is concerned with the filtration of blood, the production of urine, its storage and elimination, which defines it as being composed primarily of the [EN: kidney](#), the [EN: ureter](#) and the [EN: bladder](#). Each system comprises, as its parts, a set of organs, parts of organs, and other assemblies of body parts.

A system can also be divided into several subsystems. Such a partitioning into systems and subsystems directly structures the organization of the human body, as seen in the $\mathbf{T}_{logy}$. For example, the musculoskeletal system is broken down into three subsystems in the $\mathbf{T}_{logy}$: these are the [skeletal system](#), the [articular system](#), and the [muscular system](#). Similarly, the nervous system is made up of the [central nervous system](#), the [peripheral nervous system](#), and the [sensory organs](#).

The main line of division into systems and subsystems is that defined in

the FMA. However, the FMA does not explicitly define certain systems in the system, such as the **articular system**, the **lymphatic system**, or the **dentition**, while describing all the other parts. Furthermore, the FMA represents the **central nervous system**, the **peripheral nervous system**, and the **sensory organs** differently as distinct entities. Finally, the FMA considers the **endocrine glands** as a set of heterogeneous structures, but a system is often much more than a set. From all these differences, we must deduce that the FMA has a stricter definition of the systems of the human body, which has the effect of limiting the number of occurrences.

Under these circumstances, it was necessary to modify the taxonomy to expand it to meet the needs of the $\mathbf{T}_{logy}$. In this regard, see the **sstem10150** for the systems present and the **sstem division10152** for the subsystems.

In addition, two chapters deviate from this division into systems and have a more general scope. The chapter on **general anatomy** (is intended to cover all the parts of the body that cannot be assigned to one of these systems. It consists primarily of body parts or regions that are externally visible.

The chapter on the **trunk system** is a collection of cavities and compartments of the trunk. It also contains entities that cannot be assigned to a single system, and for this reason, they become part of this chapter. It consists primarily of anatomical entities internal to the trunk.

The chapter on **dentition** is new. It is considered to form a system in itself, and therefore it should be separated from the **digestive system**.

The genital systems deserve a mention. Human anatomy terminology—the field of the $\mathbf{T}_{logy}$ —studies two distinct global objects despite many perfectly identical common parts in terms of terminological description, but being completely different with respect to the nuclei of all the cells that compose them. These are the EN:*male human body* and the EN:*female human body*. Each of these two objects has its own genital system as a part. Therefore, there is a chapter on the **female genital system** and a chapter on the **male genital system**, but there is no such thing as a single genital system!

The quantitative distribution of the 18 chapters is the subject of 4.1.

The partonomic hierarchy is thus comprised of 18 chapters. Each chapter is summarized below in terms of its structure and content.

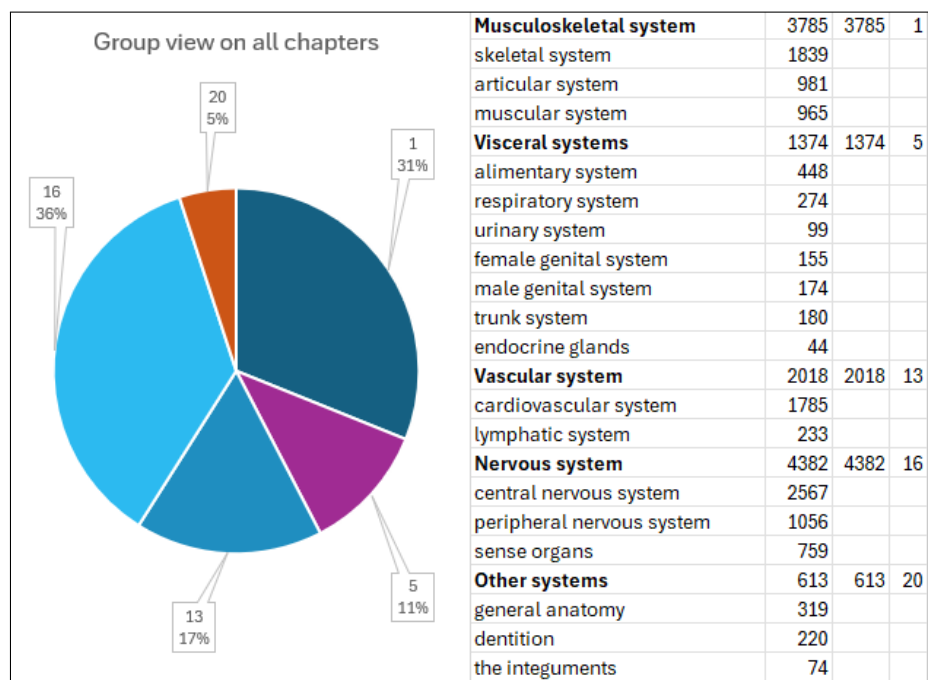


Figure 4.1: Distribution of units across the entire $\mathbf{T}_{logy}$. The values were collected in August 2026. The 18 chapters have been grouped into 5 parts for an overview. Each part will be discussed in a section below, in order to explain its content in more detail.

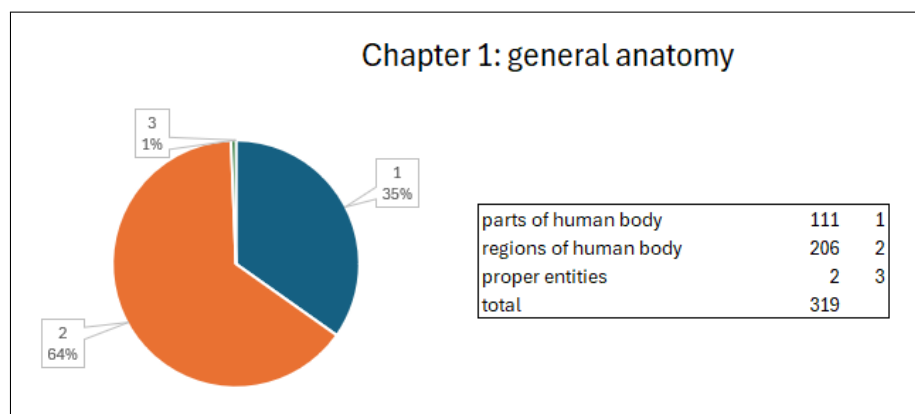


Figure 4.2: Distribution of units in Chapter 1: **General Anatomy** Values were collected in August 2026. There is a greater presence of immaterial units in the **regions of human body** than material units in the **cardinal parts of human body**. This is due to the fact that the entire surface of the human body has been subdivided with a certain degree of detail into numerous specific subsurfaces.

4.2 Chapter 1: General anatomy

The general anatomy chapter is defined by default as containing everything that cannot be attributed to another system or subsystem of the human body. It consists of general entities that pertain to the entire body or to several of its systems and cannot be specifically attributed to any one of them.

It is important to remember here that, by definition, the partonomy of the human body is a hierarchy with simple inheritance; consequently, each entity can only appear once in the hierarchy. An entity cannot appear simultaneously in general anatomy and in a system of the human body. Thus, the nose belongs to the respiratory system and not to general anatomy. However, it does appear in the latter as a reference. This basic principle of scientifically sound terminology has certainly not been respected by several authors of anatomical terminologies.

Table 4.2 documents the **general anatomy** chapter by highlighting all the lists and sublists that comprise it, while providing direct links to these lists.

The chapter on **general anatomy** is formally composed of two parts in the **T_{logy}**. There is a certain parallelism between the two parts, since each describes the entire body according to two different aspects of materiality. La répartition des unités de ce chapitre est donnée dans la figure 4.2.

The first part consists exclusively of material entities, namely different parts of the human body, under the name **parts of the human body**. The second part consists exclusively of immaterial entities, namely different regions or surfaces of the human body, under the name **regions of the human body**.

We recall, however, that TA98 had a third part, which, however, has no place in this chapter. This part consists of several groups of non-physical entities. It is unclear how such entities could be inserted into a partonomy; it is nonsensical. These entities are therefore redirected to the taxonomy, which is obviously their natural place.

P2 parts of the human body. The human body is divided into five

Level	Sections of this chapter	P1	P2	P3	P4
1	human body	319	2		
2	cardinal parts of human body		111	2	
3	head			14	
3	trunk			19	
3	upper limb			38	9
4	hand				29
3	lower limb			38	9
4	foot				29
2	regions of human body		206	4	
3	regions of head			25	
3	cervical regions			16	
3	thoracic regions			14	
3	regions of abdomen			7	
3	dorsal regions			12	
3	perineal region			4	
3	regions of upper limb			53	18
4	regions of hand				35
3	regions of lower limb			64	24
4	regions of foot				40
3	cavities			7	

Table 4.2: This table provides a comprehensive summary of all the lists and sub-lists constituting the chapter **general anatomy**. The overall partonomic list for this chapter is at level P1. It is subdivided into as many levels as necessary—specifically levels P2, P3, and P4. Each list at any level can be directly reach by clicking its name above. The data were collected in August 2026.

parts, four of which are further subdivided: these are the **head**, the **trunk**, the **upper limb (pair)**, and the **lower limb (pair)**. The head itself is divided into two parts: the EN:neurocranial region and the EN:face. The trunk is subdivided into four parts: the EN:thorax, the EN:abdomen, the EN:pelvis, and the EN:back. The upper limb has 3 parts: the EN:shoulder, the EN:axilla, and the EN:free part of the upper limb, plus a reference to the EN:pectoral girdle. A subsection is created specifically for the **hands**. The lower limb has 3 parts: the EN:buttocks, the EN:hip, and the EN:free part of the lower limb, plus a reference to the EN:pelvic girdle. A subsection is created specifically for the **feet**.

P2 regions of the human body. The human body is divided into 9 regions: these are the **head regions**, the **cervical regions**, the **thoracic regions**, the **abdominal regions**, the **back regions**, the **perineal regions**, the **regions of the upper limb (pair)**, the **regions of the lower limb (pair)**, and the **cavities**. Note that the section on cavities isn't really a section, as it only contains useful references to help locate them in their respective chapters. A subsection is created specifically for the **regions of the hand** and the **regions of the foot**.

The following comments apply to this chapter:

- Generally, references (marked by the eye icon) point directly to the chapter where the entity in question is located. This entity belongs to the referenced chapter and therefore is not part of this chapter.
- Each finger is made up of three segments (proximal, middle, and distal) except for the thumb and the big toe (which lack the middle segment). These entities have been added, along with their corresponding regions.
- The EN:eye corresponds to the visible part of the eyeball, plus the entities that complement it.
- The EN:pectoral girdle is definitively considered by most anatomists to be a single midline entity, and not a paired entity of two half-girdles. Furthermore, it is formed of bones and joints, and is therefore part of the EN:artculoskeletal system and cannot be reduced to a part of the EN:skeletal system. The same applies to the EN:pelvic girdle.
- The fingers and toes are all composed of three segments—proximal, intermediate, and distal—with the exception of the thumb (big toe), which consists of two segments. These entities, which were absent from TA98, have been added to this chapter. The same applies to the corresponding regions.

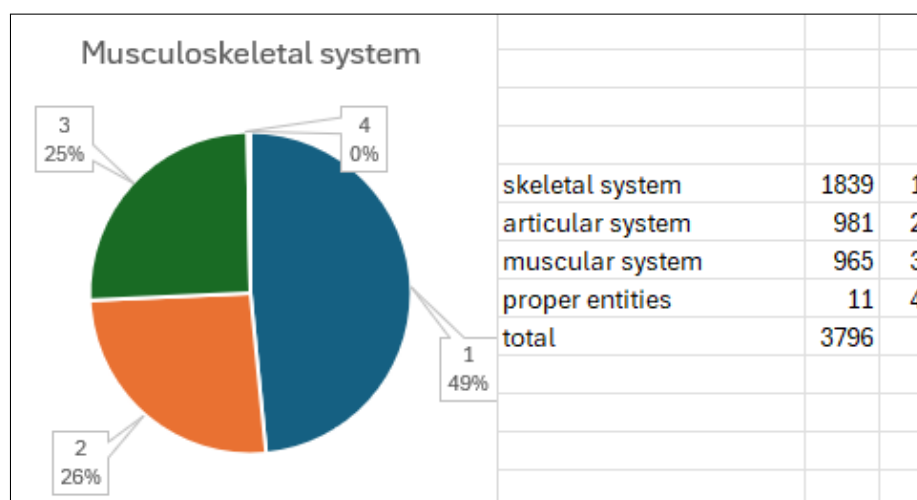


Figure 4.3: The **musculoskeletal system** is divided into three subsystems: the **skeletal system**, the **articular system**, and the **muscular system**. Values were collected in August 2026.

4.3 Musculoskeletal System

The **musculoskeletal system** comprises three subsystems, which are discussed in the following sections and are chapters of the $\mathbf{T}_{logy}$. These are the **skeletal system**, the **articular system**, and the **muscular system**.

The division into three subsystems is shown in figure 4.3.

In addition, the $\text{EN:pectoral girdle}$ and the EN:pelvic girdle naturally belong to this system as children of the $\text{EN:articuloskeletal system}$.

In this regard, it is important to dispel a very common misunderstanding about the pectoral and pelvic girdles. There are three basic axioms that must be satisfied regarding these girdles:

- Each girdle is a single entity, not a pair of hemi-girdles.
- The girdles consist of a set of bones and joints; therefore, they are part of the articular system. They cannot be part of the skeletal system. If they were, consisting solely of bones, they would be hemi-girdles.
- The girdles must be included in modern terminology for historical reasons. Although their presence is not absolutely necessary, it is required.

These three axioms express the position of the majority of anatomists.

Consequently, the following points are established in the $\mathbf{T}_{logy}$:

- A girdle, as a simple unit, cannot be part of a paired unit: that would be nonsensical. A girdle therefore cannot be part of a limb, as presented in TA98.
- The articulo-skeletal system should be created as a subsystem of the musculoskeletal system.

- The articulo-skeletal system is itself divided into the skeletal system and the articular system.
- Any mention of girdles at other locations in the $\mathbf{T}_{logy}$ must necessarily be made by reference.

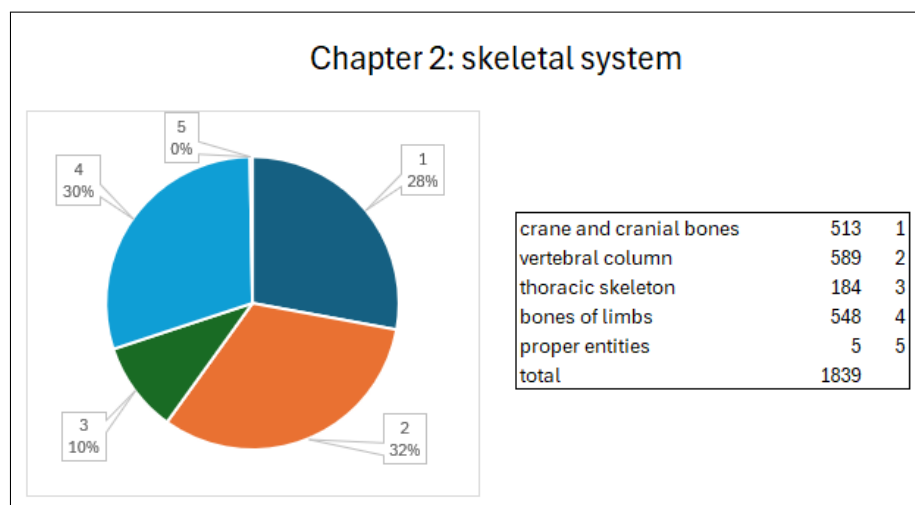


Figure 4.4: Distribution of units for Chapter 2: **skeletal system**. The values were collected in August 2026.

4.4 Chapter 2: Skeletal System

The chapter on the skeletal system examines the human skeleton. All constant bones are explicitly listed and separately identified so that the ontology can serve as a reference for computer applications.

The distribution of units within this chapter is shown in Figure 4.4.

This chapter is divided into an *EN:axial skeletal system* comprising the **cranium**, the **cranial bones**, the **vertebral column**, and the **thoracic skeleton**, and an *EN:appendicular skeletal system* comprising the **bones of the upper limb** and the **bones of the lower limb**. Each of these P2 parts is examined below.

P2 cranium. This list comprises 8 sublists at the P3 level. They are: the **aspects of cranium**, the **subdivisions of cranium**, the **terms of cranium**, the **fontanelles**, the **calvaria**, the **cranial base**, the **orbit** and the **bony nasal septum**.

P2 bones of cranium. This list refers to 15 bones of cranium, each of which is subsequently examined in detail, in the order of the 6 bones forming the cranial cavity, followed by the 9 anterior bones of the head.

For the cranial cavity, these are: the **parietal bone (paired)**, the **frontal bone**, the **occipital bone**, the **sphenoid bone**, the **temporal bone (paired)**, and the **ethmoid bone**. Among these lists, only those for the sphenoid bone and the temporal bone feature 3 and 4 sub-lists, respectively.

These are the anterior bones of the head: the **inferior nasal concha (pair)**, the **lacrimal bone (pair)**, the **nasal bone (pair)**, the **vomer**, the **maxilla (pair)** with 4 sub-lists, the **palatine bone (pair)**, the **zygomatic bone (pair)**, the **mandible** with 2 sub-lists, and the **hyoid bone**.

Table 4.3 documents the first part of the **skeletal system** chapter by highlighting all the lists and sub-lists that comprise it, while providing direct links to those lists.

P2 vertebral column. This list enumerates all the vertebrae from the most rostral to the most caudal. This list is highly repetitive, given the minimal

Level	Section of this chapter	P1	P2	P3	P4
1	skeletal system	1839	5		
2	cranium		113	3	
3	aspects of cranium			6	
3	subdivisions of cranium			6	
3	terms of cranium			16	
3	fontanelles			5	
3	calvaria			13	
3	cranial basis			23	
3	orbit			28	
3	bonny nasal septum			13	
2	bones of cranium		400	1	
3	parietal bone			19	
3	frontal bone			33	
3	occipital bone			39	
3	sphenoid			54	14
4	- body of sphenoid				18
4	- lesser wing				4
4	- greater wing				18
3	temporal bone			86	4
4	- petrosal part				57
4	- tympanic part				9
4	- squamous part				10
4	- articular tubercle				6
3	ethmoid			18	
3	inferior nasal concha			4	
3	lacryimal bone			4	
3	nasal bone			3	
3	vomer			5	
3	maxilla			52	2
4	- body of maxilla				22
4	- frontal process				4
4	- palatine process				7
4	- alveolar process				17
3	palatine bone			20	
3	zygomatic bone			12	
3	mandible			46	1
4	- body of mandible				30
4	- branch of mandible				15
3	hyoid bone			4	

Table 4.3: Skeletal system: part 1 of 2. Skull and cranial bones. This table provides a comprehensive summary of all the lists and sub-lists that make up the first part of the **skeletal system** chapter. The overall partonomic list for this chapter is at level P1. It is subdivided into as many levels as necessary—levels P2, P3, and P4. Any list at any level can be accessed directly by clicking its name above. The data were collected in August 2026.

variation from one vertebra to the next. However, it is important to list each one exhaustively and identify every part. The vertebral column comprises six divisions, listed below.

The description of a **typical vertebra** comes first and outlines features common to all vertebrae. These features are subsequently revisited with specific details for each individual type.

There are 7 **cervical vertebrae**. Three are distinctive: the first, the **atlas**; the second, the **axis**; and the seventh, the **vertebra prominens**. Cervical vertebrae 3 through 6 are typical.

The 12 **thoracic vertebrae** are relatively typical. The same applies to the 5 **lumbar vertebrae**. The **sacrum** and the **coccyx** follow.

P2 thoracic skeleton. This list naturally follows the list for the vertebral column and complements it. This list comprises four parts: the **ribs (pair)**, the **costal cartilages (pair)**, the **sternum**, and the **thoracic cage**. Only the first list includes 12 sub-lists to enumerate each rib individually.

The chapter continues by moving on to the *EN:appendicular skeletal system*, specifically the treatment of the lower and upper limbs.

P2 bones of the upper limb. This list is organized into 8 parts: 2 parts for the *EN:bones of the pectoral girdle*, 6 parts for the bones of the *EN:free part of the upper limb*, including 3 parts for the *EN:bones of the hand*.

The *EN:bones of the pectoral girdle* are the **scapula** and the **clavicle**.

The bones of the *EN:free part of the upper limb* are the **humerus**, the **radius**, and the **ulna**.

The 27 *EN:bones of the hand* are the 8 **bones of the wrist**, the 5 **bones of the metacarpus**, and the 14 **phalanges of the hand**, with the latter list comprising 3 sub-lists.

P2 bones of the lower limb. This list is organized into 13 parts: 1 part for the *EN:bones of the pelvic girdle*, 1 part for the **pelvis**, and 11 parts for the bones of the *EN:free part of the lower limb*, including 7 parts for the *EN:bones of the foot*, with 3 sub-lists for the **phalanges of the foot**.

The *EN:bones of the pelvic girdle* consist of the *EN:sacrum*—included here for reference as it is part of the *EN:vertebral column*—and the **hip bones**, each represented in a sub-list, namely the **ilium**, the **ischium**, and the **pubis**.

The bones of the *EN:free part of the lower limb* are the **femur**, the **patella**, the **tibia**, and the **fibula**.

The 26 *EN:bones of the foot* are the **talus**, the **calcaneus**, the **navicular bone**, the 3 **cuneiform bones**, the **cuboid bone**, as well as the 5 **metatarsal bones** and the 14 **phalanges of the foot**, with the latter list comprising 3 sub-lists.

Table 4.4 documents the second part of the **skeletal system** chapter by highlighting all the lists and sub-lists that comprise it, while providing direct links to those lists.

The following comments apply to this chapter:

- The wrist is considered part of the hand, in accordance with a classical anatomical perspective. There are 8 wrist bones. Similarly, the tarsus is part of the foot. There are 7 tarsal bones.
- The ossicles of the middle ear are described in the chapter on the sense organs.

Level	Section of this chapter	P1	P2	P3	P4
2	vertebral column		589	13	
3	typical vertebra			20	
3	cervical vertebra			158	2
4	- atlas				15
4	- axis				21
4	- any cervical vertebra (4x)				96
4	- vertebra prominens				24
3	thoracic vertebra			261	1
4	- any thoracic vertebra (12x)				260
3	lumbar vertebra			104	4
4	- any lumbar vertebra (5x)				100
3	sacrum			31	
3	coccyx			2	
2	thoracic skeleton		184	1	
3	ribs			149	6
4	- any rib (12x)				143
3	costal cartilages			13	
3	sternum			9	
3	thoracic cage			12	
2	bones of upper limb		228	4	
3	scapula			25	
3	clavicle			11	
3	humerus			30	
3	radius			23	
3	ulna			19	
3	bones of wrist			14	
3	metacarpal bones			22	
3	phalanges of hand			80	1
4	- any phalanx of hand (3x)				79
2	bones of lower limb		320	8	
3	hip bones			54	9
4	- ilium				22
4	- ischium				6
4	- pubis				17
3	pelvis			22	
3	femur			29	
3	patella			9	
3	tibia			30	
3	fibula			19	
3	talus			21	
3	calcaneus			16	
3	navicular bone			2	
3	cuneiform bones			4	
3	cuboid bone			4	
3	metatarsal bones			23	
3	phalanges of foot			79	1
4	- any phalanx of foot (3x)				78

Table 4.4: Skeletal system: part 2 of 2.

- The mandible is a single entity, although it is a paired structure during the first year of life.
- Dentition is not covered in this chapter. It is addressed in a dedicated chapter, separate from the chapter on the digestive system.
- The pectoral and pelvic girdles were discussed in the preceding section on the musculoskeletal system. This has implications that are evident in this chapter.

4.5 Chapter 3: Articular system

4.6 Chapter 4: Muscular system

4.7 Chapter 5: Digestive system

4.8 Chapter 6: Dentition

4.9 Chapter 7: Respiratory system

4.10 Chapter 8: Urinary system

4.11 Chapter 9: Female genital system

4.12 Chapter 10: Male genital system

4.13 Chapter 11: Trunk system

4.14 Chapter 12: Endocrine glands

4.15 Chapter 13: Cardiovascular system

4.16 Chapter 14: Lymphatis system

4.17 Chapter 15: Central nervous system

4.18 Chapter 15: Peripheral nervous system

4.19 Chapter 17: Sense organs

4.20 Chapter 18: The integuments

4.21 Log of updates

25 Aug 2026 Creation of this chapter in French.

1 Sep 2026 Translation in English of this chapter from the source French version.

4.22 Credentials

This document is part of the book *Universal Terminology*, which accompanies the website Terminologia Anatomica, sponsored by the University of Fribourg, Switzerland. It expresses the authors' vision of the **T_{logy}** on the foundations of the science of ontology, supporting the terminology presented here. While it is as accurate as possible, closely reflecting the reality of the terminological database and the software that supports it, approximations, errors, and ambiguities are possible and should be considered as unintentional.

Any comments regarding the content of this document, the website, and its presentation are welcome. An appropriate response will be provided as needed.

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