

# The Relevance of Terminologia Anatomica and the Federative International Programme of Anatomical Terminology (FIPAT)

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Dear Editor,

The Federative International Programme of Anatomical Terminology (FIPAT) is one of many committees/programs of the International Federation of Associations of Anatomists (IFAA), which was founded in 1903. Other committees include those related to education, scientific publications, anatomical research, equality and diversity, and ethics and medical humanities. These various groups are overseen by the IFAA Executive Committee composed of a president, past president, secretaries, treasurer, and the chairs of the other committees and Programs.

FIPAT is composed of a chair, secretary, working groups and their leaders. The working groups are made up of approximately 50 members from anatomists from around the world. Drafts of the Terminologies arise in the specific working groups and are reviewed by the group, leaders of the other FIPAT committees, the IFAA Executive, and finally, approved by Member Societies with final approval given by the General Assembly of the IFAA. The Terminologies serve as the internationally agreed upon official anatomical nomenclature.

As all anatomists will undoubtedly agree, it is very important to have a standardized reference for terminology in the anatomical sciences. As anatomical terms can vary from country to country, a dedicated go-to source for official terminology is important when communicating with a global audience e.g., peer review publications. Additionally, often, the anatomical terminology used by clinicians can vary and often uses non-standard terminology e.g., eponyms. Therefore, without a standardization of anatomy terms, the potential for a tower of Babel might occur. As unequivocal communication is so essential in the descriptive nature of the anatomical sciences, standardization is of paramount importance.

For the IFAA terminologies, Latin is the official language. There are many reasons for this, and in some countries Latin terms are used for teaching and communication in the anatomical sciences e.g., textbooks. For the Terminologies, which are readily found online (<https://fipat.library.dal.ca/TA2/>), one can find a seven-column system (Fig. 1). The first column is used to provide a unique identification number to the anatomical term. The second column lists the official Latin term for the anatomical structure. Following this, in a third

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column, when a Latin synonym exists, it is listed. Columns four and five list the British and US English spellings of the term, respectively. Finally, in the seventh column, an English synonym, when appropriate, is listed and includes any common eponyms.

An initial move forward in regard to standardization of anatomical terminology came by way of the Basel *Nomina Anatomica*, which was approved in 1895 by the Congress of the Anatomische Gesellschaft. This would be followed by revisions in 1933 and 1935 in Birmingham and Jena, respectively. Later, in 1950, the International Anatomical Nomenclature Committee (IANC) was established by the IFAA. Then, in 1955, *Nomina Anatomica* was approved in Paris at the sixth Congress meeting. *Nomina Anatomica* would go through several editions in the 1960s, 1970s, and 1980s, with the latter including *Nomina Histologica* and *Nomina Embryologica*. In the late 1980s, a dispute between the IFAA and IANC resulted in a sixth edition of *Nomina Anatomica* being published, but without IFAA approval. Derived from this dispute, in 1998, *Terminologia Anatomica* was produced by the Federative Committee on Anatomical Terminology (FCAT), a committee of the IFAA. In 1999, FCAT was changed to Federative International Committee on Anatomical Terminology (FICAT),

which is now, since 2009, known as FIPAT. FIPAT has produced *Terminologia Embryologica*, first and second editions, *Terminologia Neuroanatomica*, and in 2019, TA2. TNA, TE2 and TA2 are all available online. Currently, a second edition of *Terminologia Histologica* is underway in addition to several newer terminologies including *Terminologia Oroanatomica* and *Terminologia Anatomica Anthropologica*.

Unlike in the past, where a print copy of the book was necessary and the required index searching, which was inconvenient, the online archive for the Terminologies allows them to be 'living documents', includes errata sections, and includes a TA2 Viewer. To increase the use and ease of accessing TA, the TA2 Viewer is now available (<https://ta2viewer.openanatomy.org>). This is a searchable, dynamic web application of TA2, and is a collaboration between the IFAA and the Open Anatomy Project at the Brigham and Women's Hospital (Boston, USA). The Viewer is a powerful tool not only for searching TA2; it also includes links to the use of the term on various search engines e.g., Google. Additionally, links to Medical Subject Headings (MeSH) terms, important online resources such as *Gray's Anatomy* (20th edition) published in Philadelphia in 1918, and informatics sites such as the Foundational Model of Anatomy (FMA) from the Structural Informatics Group

	Latin term	Latin synonym	UK English	US English	English synonym	Other
351	<b>Systemata musculoskeletal</b>		<b>Musculoskeletal systems</b>	<b>Musculoskeletal systems</b>		
352	<b>Systema skeletale</b>	<b>Skeleton</b>	<b>Skeletal system</b>	<b>Skeletal system</b>	<b>Skeleton</b>	Sceletum Endnote 56 Sceletum axiale
353	<b>SKELETON AXIALE</b>		<b>AXIAL SKELETON</b>	<b>AXIAL SKELETON</b>		Sceletum axiale
354	Neurocranium		Neurocranium	Neurocranium		Brain box; Cranium cerebrale
355	Viscerocranium		Viscerocranium	Viscerocranium		Cranium viscerale
356	Ossa faciei		Facial bones	Facial bones		Cranium faciale; Skeleton faciei; Skeleton faciale; Facial skeleton
357	Chondrocranium		Chondrocranium	Chondrocranium		
358	Desmocranium		Desmocranium	Desmocranium		
359	<b>SKELETON APPENDICULARE</b>		<b>APPENDICULAR SKELETON</b>	<b>APPENDICULAR SKELETON</b>		Sceletum appendiculare
360	Skeleton membrorum superiorum		Skeleton of upper limbs	Skeleton of upper limbs		
361	Cingulum pectorale	Cingulum membrorum superiorum	Pectoral girdle	Pectoral girdle	Upper limb girdle; Shoulder girdle	Cingulum membri superioris; Cingulum extremitatum superiorum; Cingulum extremitatum thoracicarum
362	Skeleton partis liberae membri superioris	Skeleton membri superioris liberi	Skeleton of free upper limb	Skeleton of free upper limb		Skeleton extremitatis superioris liberae; Skeleton extremitatis thoracicae liberae
363	Skeleton membrorum inferiorum		Skeleton of lower limbs	Skeleton of lower limbs		
364	Cingulum pelvium	Cingulum membrorum inferiorum	Pelvic girdle	Pelvic girdle	Lower limb girdle	Cingulum membri inferioris; Cingulum extremitatum inferiorum; Cingulum extremitatum pelvinarum
365	Skeleton partis liberae membri inferioris	Skeleton membri inferioris liberi	Skeleton of free lower limb	Skeleton of free lower limb		Skeleton extremitatis inferioris liberae; Skeleton extremitatis pelvinae liberae
366	<b>OSSA</b>		<b>BONES</b>	<b>BONES</b>		Osteologia
367	Os membranaceum		Membranous bone	Membranous bone	Membrane bone	
368	Os endochondrale		Endochondral bone	Endochondral bone	Cartilaginous bone	
369	Os longum		Long bone	Long bone		
370	Os breve		Short bone	Short bone		
371	Os planum		Flat bone	Flat bone		
372	Os irregulare		Irregular bone	Irregular bone		
373	Os pneumaticum		Pneumatized bone	Pneumatized bone		
374	Os sesamoideum		Sesamoid bone	Sesamoid bone		

Fig. 1.- Example of the seven-column system found in TA2. Note that this same system is used throughout the IFAA Terminologies.

are included. The reader is encouraged to take advantage of this resource.

Anatomical terminology must avoid ambiguity. To this end, the standardized and internationally agreed upon nomenclature provided by the IFAA's Terminologies is important not only to the anatomist but also practitioners of medicine and the lay public. Although a single collection of tens of thousands of terms will never be perfect (Chmielewski and Domagała, 2020), constantly revising and reevaluating the IFAA's Terminologies will help to keep these terms relevant now and into the future (Neumann et al., 2017a; Neumann et al., 2017b; Neumann et al., 2020).

Sincerely,

Shane Tubbs

Chair, FIPAT

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