

CONCEPT

Joint Initiative to create Open Definitions for Anatomical Terms

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AACCA = American Association of Clinical Anatomists

ATI = AnatomicalTerms.info website

CAT Committee of AACCA = Clinical Anatomical Terminology Committee of AACCA

FICAT = Federative International Committee on Anatomical Terminology - the predecessor to FIPAT, it was a committee of the IFAA.

FIPAT = Federative International Programme for Anatomical Terminology, FIPAT is a committee of the IFAA

IFAA = International Federation of Associations of Anatomists

AACCA is a Member-society of the IFAA

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About the Initiative

On the way to open, peer reviewed, anatomical definitions

A group of anatomists from LUMC, Department of Anatomy & Embryology¹, CAT-AACA² and FIPAT³ venture to create open, peer reviewed, definitions for anatomical terms.

1. Leiden University Medical Center (LUMC), Department of Anatomy & Embryology, Netherlands
2. Clinical Anatomical Terminology Committee of the American Association of Clinical Anatomists (CAT Committee of AACA)
3. Federative International Programme on Anatomical Terminologies (FIPAT), Terminological Committee of the International Federation of Associations of Anatomists (IFAA)

From confusion to clarity... the need for definitions

No generally agreed definitions for anatomical terms exist. An official list of anatomical terms, the [Terminologia Anatomica \(TA\)](#), was sanctioned and published almost 20 years ago (1998). An updated version will be completed and published by the end of 2016. However, a concerted initiative to define these terms has not been undertaken to date.

Definitions for most of these terms were already present in medical dictionaries, textbooks, and publications. However, among these sources could be found significant variations, not only in form, but in some cases also in meaning assigned to anatomical terms.

Users often are not aware that the terms they use may be understood differently. This may lead to misunderstanding, confusion and waste of time in learning anatomy for students and ultimately to professional medical miscommunications. Open publication and peer reviewing of definitions will create awareness of existing meaning differences and gradually reduce inconsistencies.

From commercial restrictions to open access

The entirety of the anatomical lexicon, as with any language, is comprised of 'free to use' terms, meaning that word usage is neither restricted nor commodified. Conversely, definitions and descriptions are subject to copyright restrictions (as in anatomy books, medical dictionaries, and most websites). Additionally, definitions may be subject to lack of quality assurance, as on some websites.

We believe that essential knowledge of anatomy, a discipline so fundamental to human beings and basic to medicine, should be open and free. Consistent with the present world-wide movement for open education and open access to scientific knowledge^{1,2,3}, the AnatomicalTerms.info initiative of LUMC, Department of Anatomy & Embryology, AACA and FIPAT together venture to create quality controlled *Open* Definitions for Anatomical Terms.

1. [UNESCO 2012 Paris Open Educational Resources Declaration](#)
2. [Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities](#)

3. [Creative Commons: The State of the Commons](#)

Background: Definitions are needed to resolve synonym discrepancies

AnatomicalTerms.info: web site for anatomical synonyms

The background of this initiative lies in a prior initiative of LUMC, Department of Anatomy & Embryology and CAT-AACA to create an online resource (www.anatomicalterms.info (ATI)) to collect and openly publish synonymous terms in use for all anatomical structures.

There was a need for this compilation as several synonymous and near-synonymous terms were, and continue to be in use for many anatomical structures. For example, the cardinal ligament may also be denoted as *Mackenrodt's ligament*, *transverse cervical ligament*, or *lateral cervical ligament*. In clinical practice unofficial (non-TA) anatomical terms are often used, moreover, different clinical specialties may each use different terms for the same concept. This situation has grown due to different needs in the usage of terms, but also due to tradition and cultural factors, and rapidly changing imaging and accessing technologies. The existence and continued expansion of synonymous terms continues to lead to confusion.

If even seasoned anatomists and physicians sometimes don't know what certain anatomical terms used by colleagues mean, imagine how confusing this is for students and novices! ATI aims to alleviate this problem by collecting the variant terms and presenting them together in one central reference.

Is it a synonym? We need a definition!

In order to determine whether two terms indeed are synonyms, they should be **defined**. This led to the present initiative to create open definitions for anatomical terms and concepts.

Patterns and guidelines to achieve consistency and conciseness

Patterns: Standard templates to create definitions

The initial step was to develop *patterns* that could serve as templates for definitions. The templates would serve two purposes. The first was to achieve *consistency* across definitions. The second was to create definitions that are as *concise* as possible in order to 'capture' the core meaning that a term represents.

Definitions serve the aim to *uniquely define* a concept or structure. They should only have the minimum level of detail needed to do so. Determining this minimum level of detail is often difficult, especially as anatomists, being teachers and careful morphological observers and describers, have a natural tendency to be elaborate when describing structures. Patterns may help to achieve the required minimalism.

Separate patterns were developed to guide defining specific categories of structures, e.g. bones, blood vessels, muscles, etc. These patterns will be published here. Work is continuing as we develop patterns for all types of structures. These will be completed by fall 2016.

Guidelines: General approaches

Upon writing definitions, one encounters several choices that may be subject to opinion or are a matter of style. Questions arise such as: 'Should anatomical terms embedded in a definition be defined?' 'Which language should be used for anatomical terms embedded within definitions – Latin, English, or the language of the definition?' To achieve as much consistency as possible between definitions, guidelines were written to describe recommended approaches to such questions.

The patterns and guidelines together form the basis for the creation of definitions.

The plan for the process of creating and reviewing of definitions

Creating definitions

Experts from specific fields will be approached and invited to create definitions for anatomical terms using these patterns and guidelines. Definitions in English will form the reference and will be created first. Over time it is intended to add translations of these definitions in other languages. Proposed definitions will be posted on www.anatomicalterms.info, crediting their author(s).

Reviewing definitions

The Joint Initiative parties will organize peer-reviewing of the posted proposed definitions. All definitions will be reviewed by three different experts:

- an anatomist
- a clinician
- a member of a *terminological* group of an anatomical organisation, such as CAT-AACA or FIPAT

These experts will review within their relevant disciplines and language areas.

Reviewing will be based on the following criteria:

- The definition should agree with the *generally understood meaning* of the concept's primary term.
- The definition should conform with the *pattern* for definitions for this specific type of concept/structure (e.g. blood vessels, bones, muscles, etc.) and with the *guidelines*, as developed in this Joint Initiative.

In cases of disagreement between reviewers, the Joint Initiative parties will adjudicate. The reviewer's comments and judgements will also be posted on www.anatomicalterms.info.

Open License

The created definitions will be freely available under the [Creative Commons license Attribution 4.0 International \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).

Why do we do this?

Anatomy is basic to medicine but is an extensive subject and many aspects are complex. Effort and time is lost on struggling to understand the meaning of words rather than being used for *comprehending* anatomy, helping patients, or producing research. Such losses should be minimized.

Hence, the ultimate goals of this initiative to create open definitions are:

- to reduce confusion for students and other users of anatomical terminology,
- to facilitate learning and communication about anatomy,
- to improve the care of patients,
- to increase the understanding about ourselves.

Invitation to contribute

Are you an anatomist or a clinician? Would you like to contribute to this next step in teaching and learning anatomy? Would you like to be part of the international movement fostering open sharing of (scientific) knowledge? Would you like to help future doctors, nurses, physical therapists, but also anyone encountering anatomical terms either as patient or professional, to more quickly and reliably find the meaning of anatomical terms and reduce confusion? You can help either by creating or reviewing definitions. If you would like to help, please let us know!

Thank you!

The members of the Joint Initiative

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About the Anatomical Definitions Joint Initiative - further reading

History

AnatomicalTerms.info

In 2007, Paul Gobée from the Department of Anatomy & Embryology, Leiden University Medical Center (LUMC), Netherlands, created the first version of the web site AnatomicalTerms.info (ATI), a web site offering translations between official anatomical terms, clinical terms, terms in other languages, etc., intended to alleviate student's frequent anatomical terminological hurdles.

CAT committee of AACA

In 2010, Gobée was invited to join the CAT committee of AACA because the goal of ATI paralleled the goals of the committee. From 2010 to 2013, the present, wikified, version of ATI was developed, in close collaboration between Gobée and the CAT committee.

It was planned to review the terms on ATI, but it soon became clear that, to do so, definitions were needed. As no set of open definitions was available that could be posted on ATI, it was decided to develop definitions ourselves and release them under an open license.

'Patterns and Guidelines' document

It was realised that standardisation and a thorough preparation were needed to create definitions. The CAT committee set out to develop templates for the creation of the anatomical definitions over the course of 2013-2014.

This led to a document named 'Patterns and guidelines for developing definitions for anatomical concepts' of which the first version was internally released in August 2014.

FIPAT

During the 18th Congress of the International Federation of Associations of Anatomists (IFAA) in Beijing (2014), it was envisaged to initiate a direct collaboration between the user-friendly website ATI, and the FIPAT Informatics working group, which had created at the University of Fribourg (Switzerland) a website where the existing official anatomical terminologies (TA for anatomy, TH for histology and TE for embryology) were posted. The purpose was to better disseminate these terminologies amongst the anatomical and biomedical professionals.

It soon appeared that the user-friendliness of the Leiden website ATI could not be linked to the rigorous dryness of the Fribourg official terminologies without creating a set of formally indisputable standardised definitions of the terms. These definitions were to be inserted in user-friendly postings to render them at the same time rigorous and accessible.

Therefore in 2015, a group of anatomists from the Informatics working group of FIPAT joined the Initiative of the CAT Committee of the AACA and LUMC Department of Anatomy & Embryology, with the joint goal to create open, peer reviewed, definitions for anatomical terms.

Joint Initiative to create Open Definitions for Anatomical Terms

In 2016 the name 'Joint Initiative to create Open Definitions for Anatomical Terms' was coined to denote the collective initiative. The present document with the same name was created, in which the 'Patterns and Guidelines' document was incorporated and background information about the initiative added.

Testing phase

Mid 2016, the alpha version of the patterns and guidelines was finished for bones, bone features, joints, muscles, vessels and tubes. Presently we are in the testing phase to test their usability.