

The revival of anatomy in gynaecology

Citation for published version (APA):

Koppes, D. (2022). *The revival of anatomy in gynaecology: The known, need to know and unknown*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20221110dk>

Document status and date:

Published: 01/01/2022

DOI:

[10.26481/dis.20221110dk](https://doi.org/10.26481/dis.20221110dk)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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Impact paragraph

What is the problem?

Medical education has changed dramatically over the past century. We stepped back from traditions when it comes to anatomy education and problem-based learning was introduced. Signals from the working field indicate that we have gone too far in those changes, increasing worries and insecurities about the level of anatomical knowledge to perform safe practice.

What are the results?

This thesis provides insight in the different aspects of anatomical knowledge as *what is known, what is need to know* and *what is unknown*.

The main aim was to answer the question of the general feeling that we lack anatomical knowledge is justified. This thesis showed that the current literature does not provide an answer on the level of anatomical knowledge. Mainly because the lack of standardization in required knowledge and ways of testing. This emphasises the need to define the need to know knowledge. Through a national and international Delphi process we defined the need to know knowledge when it comes to anatomy for a general gynaecologist. An analysis of this need to know knowledge in 10 year of assessments during obstetrics and gynaecology (O&G) training showed that the actual knowledge level of O&G trainees was lower than expected and that the amount of relevant anatomy questions was very limited. We also explored the way anatomy is used in daily practice of gynaecologists and how anatomical knowledge acquisition is influenced by the use of anatomy in daily practice. The results of this thesis provide us with tools to improve anatomy education in postgraduate education of O&G.

Why this thesis is relevant?

The aim of this chapter is to describe the (potential) contribution of the results from this thesis to science and, if applicable, to societal sectors and societal challenges. Since this thesis is a first step in the development of a comprehensive training program for O&G postgraduate training for the subject anatomy, it is difficult to articulate exactly what the society gains from our results. Training a competent doctor involves a multi-year plan and does not come down to one competence or solely good anatomical knowledge. Thereby, the distinction between scientific and societal impact is not that strict. The society will benefit from competent doctors, indirectly pay for the education of doctors, but it is the scientific component which defines 'competent' and determines the curricular content. Where this is

expressed in soft markers rather than grades and costs are not so clearly defined. Nevertheless, we think that this first step in the process can already have an impact on daily practice.

For those who are engaged with the postgraduate education of O&G, the presented need to know knowledge provides the possibility to work uniform, not only in the Netherlands but worldwide. The benefits associated with this uniformity are discussed in Chapter 5. In addition to working uniformly, one can also work purposefully. This can help to teach efficiently and may provide trainees with some guidance. This thesis showed that trainees often feel insecure about their anatomical knowledge and, at the same time, that a good knowledge of anatomy leads to a high level of self-efficacy. This feeling of insecurity comes partly due to the lack of a guideline about what is expected of them in terms of anatomical knowledge. So, for trainees it is beneficial to have a guideline of required knowledge.

In the context of efficacy, nowadays conservative therapy, where possible, is the first step in medicine. An example: *30 years ago, when there was a menstrual bleeding disorder and the wish for children was completed, the uterus was removed. Current conservative or minimal invasive options such as hormonal therapy or endometrium ablation are offered first.* The consequence is that the exposure to a procedure and thereby to the intra-abdominal anatomy is limited. With sharply defined need to know knowledge, efficient teaching during those moments of surgery can be applied. Hereby those 'rare' moments can be optimally used in terms of application and teaching of anatomical knowledge.

More specific, the results of this thesis influence the formal teaching of anatomy in the postgraduate education of O&G in the Netherlands. The compulsory anatomy course has been renewed with the results of this thesis. The results from chapters 4 and 5 form the scientific basis for anatomical structures to be taught in this course. Furthermore, the structure of the course is amended. Anatomy is not only taught during this course but a handhold to raise the attention for anatomy during daily practice is introduced. In this handhold the important anatomical structures to perform safe and competent practice are offered in combination with tips & tricks to actively work with those structures in practice. These tips & tricks are based on the facilitating and hampering factors described in this thesis.

More generally, anatomy is important not only to surgeons but for all medical doctor as it supports a patient's examination, facilitates diagnosis, and communicating these findings to the patient and other medical professionals. That means that the results of

this thesis can serve as a roadmap for other postgraduate education programs. It helps them define what essential knowledge is and uses the facilitating and hampering factors for the acquisition of anatomical knowledge to teach anatomy.

Companies who are engaged with the development of educational tools might also benefit from the results of this thesis. So far it is unknown how anatomy is taught in the most efficient and effective way. However, it is known that students find it hard to translate 2D images in the textbooks to the 3D view in patients. Several apps and programs are built to overcome this problem. The companies behind it may benefit from the availability of need-to-know knowledge. It will provide them with a scientific base for their content and make their tools more applicable for practice.

From a scientific perspective, this thesis gives a sign to those involved in medical education: self-directed learning requires some reflection and coaching. Self-directed learning is defined as a learner who takes the initiative for their own learning, identifying their own learning needs. This thesis revealed that it seems that, at least for the subject of anatomy, the trainee is not fully able to identify and address those learning needs. This suggests that it is unwise to let the trainee completely free in their learning trajectories. The learning trajectory of the trainee should be planned with some steering from a supervising colleague.

The future

This thesis focusses mainly on the what: what do we know, what do we need to know and what is unknown? The unknown, *i.e.*, the next step in this process of developing a comprehensive training program for postgraduate training in obstetrics and gynaecology for the subject anatomy, is the how. We have identified essential knowledge and facilitating and hampering factors, these results influence the next step: how can this essential knowledge best be addressed to the obstetrics and gynaecology trainees?

Other examples of research opportunities and implementations for the future are:

- Research into the anatomical knowledge level compared with anatomical errors/claims related to anatomical errors.
- Ethnographical study in the operation room to observe how we use and teach anatomy.
- Adjusting the annual progress test with a reasonable number of relevant anatomy question.
- Extend the obligated anatomy course with educational tools with relevant anatomical content for repeated learning.