

# New Approaches to Ultrasound Education

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Heidelberg University is one of the few German universities to offer all medical students the opportunity to acquire and consolidate knowledge of abdominal ultrasound and topographical anatomy at the preclinical stage. The one-week program has received the best evaluation of all courses at Heidelberg University.



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**Ralph Nawrotzki, MD, DPhil**  
Educational coordinator of the preclinical studies section  
and lecturer at Heidelberg University’s Institute for  
Anatomy and Cell Biology



For a number of years, Ralph Nawrotzki, MD, DPhil, has been working with tutors to further develop the preclinical ultrasound course. ....



As omnipresent and indispensable ultrasound is in medical practice, still there are very few opportunities for students to familiarize themselves with this procedure at an early stage in their studies. One pioneering institution in the provision of broad-based ultrasound training, even in the preclinical semesters, is Heidelberg University. Here, all students of human medicine can attend a five-day ultrasound course in the second semester to consolidate their basic anatomical knowledge from the dissection course while simultaneously gaining their first practical experience with ultrasound.

The course's success shows that the curriculum developers are on the right track: Attracting over 300 participants each year, it is the best-evaluated course at Heidelberg University. At the same time, the concept of teaching anatomy using peer students is also exactly in line with the 2020 master plan for medical education ("Masterplan Medizinstudium 2020"), in which the German government's expert commission has called for a stronger focus on clinically relevant content. For Ralph Nawrotzki, MD, DPhil, educational coordinator of the preclinical studies section at Heidelberg



**Ralph Nawrotzki, MD, DPhil**

has been group leader and educational coordinator of the preclinical studies section at Heidelberg University's Institute for Anatomy and Cell Biology since 2008 and is one of the initiators of the successful preclinical ultrasound course.

University's Institute for Anatomy and Cell Biology, the learning spiral that the course provides is a key factor in its success: "Normally, it's difficult to give students an idea of the neighborhood relationships in the abdominal region, for example. Now, we can lay the foundations for this in normal macroscopic teaching in the first semester and then consolidate them in the ultrasound course in a way that's actually relevant to practical diagnostics. This acts as a source of huge intrinsic motivation for the students." Another key factor is the role played by the course's team of around 50 tutors, who are selected and trained based on an elaborate system. In this way, the anatomists in Heidelberg not only ensure that the basics of ultrasound diagnostics are conveyed to a large number of students, but also simultaneously train a broad group of highly motivated ultrasound operators for the future.

Nawrotzki emphasizes that the course complements the classical learning objectives of anatomical systematics by providing students with training in pattern recognition: "This is about a physician's basic ability to differentiate: 'What is a normal, common occurrence and what could be pathological, in which case I need to discuss it with someone more experienced.'" It is a testament to the course's credibility that, for the last three years, students from top European

universities have attended an international summer course (SASH) in Heidelberg in order to train based on the same model.

Heidelberg University's Study Commission and its student representatives were so convinced of the value of the ultrasound courses that they co-financed the acquisition of eight new ACUSON X700 ultrasound systems from the Commission's relatively meager student funds. They decided in favor of the offer from Siemens Healthineers because they were looking for highly robust ultrasound systems that provided both intuitive operation and excellent image quality. "The new systems are, of course, fantastic – they make even the most intensive work straightforward. That allows us to make even more progress in the course, moving away from purely abdominal examinations and toward echocardiography," says Nawrotzki. And, in the months when the systems are not needed for the preclinical ultrasound courses, they are available in the training center – the so-called "Skills Lab" at Heidelberg University's Center for Internal Medicine – for use in clinical training. ●

*The statements by Siemens' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.*