

First Examination for the Fellowship in Clinical Radiology

Anatomy Module – Advice for Candidates

Standard setting and marking

Setting the pass mark

Each exam has undergone prospective standard setting. The criterion-referenced technique we use is the modified Angoff method, one of the more valid methods in common usage. The standard setting process is performed with knowledge of the marking scheme and the pass mark therefore varies depending on the questions used; each exam will have an individual pass mark.

Automated marking

The exam platform utilises automated marking, which is programmed with acceptable answers. The answers are provided by a group of FRCR examiners, who are all UK consultant radiologists. After the exam, these programmed answers are matched with candidate responses and marks awarded by the system accordingly. Any answers that do not exactly match those within the platform will be reviewed by examiners and awarded an appropriate mark.

Scoring scheme

Marks are awarded for precision of anatomical description. This is a core skill for a clinical radiologist and should be mastered at an early stage. Each question is marked on a scale of 0, 1 or 2. A fully accurate answer will gain 2 marks. A less accurate answer (e.g. omission of 'left' or 'right' for a paired structure) will be awarded 1 mark. Incorrect answers will be awarded 0 marks. Vague or imprecise answers (e.g. 'liver' when the fully correct answer is 'segment VIII of the liver') will also be awarded 0 marks.

Knowledge and content

How we ensure full coverage of the curriculum

Each examination paper is blueprinted which ensures coverage of the curriculum. We also take great care to ensure that individual radiographic modalities and different body parts are given equal weight. In each exam roughly one-third of questions will be on images from cross-sectional techniques, plain radiographs and contrast studies (including those acquired by cross sectional means). Similarly, one-quarter of questions will be on anatomy of the head, neck and spine; one-quarter on thoracic and cardiovascular systems, one-quarter on the abdomen and pelvis, and one-quarter on musculoskeletal structures. Each exam will also cover aspects of paediatric radiological anatomy, as discussed below. We also test recognition of normal variants. Whilst there are limitless variations of what might be considered normal, we seek to test knowledge of variations that are either common and/or have 'clinical significance'. By this, we mean a normal variant that may be mistaken for pathology or can predispose to certain diseases.

Pathology

The images used demonstrate normal anatomy - this exam does not test pathology. Occasionally minor age-related degenerative changes may be present on the image, but this will not be tested.

Radiology techniques

This knowledge is not specifically required. Questions will not be asked about how the images were acquired or anything specific about the imaging technique. All arrows are intended to indicate anatomical structures, and are not indicating radiographic artefacts, instruments, catheters or the contrast agent itself.

Obviously, enough needs to be known about the modality to recognize the radiological anatomy as demonstrated by a particular technique. For example, when looking at an arterial-phase contrast-enhanced CT, the candidate should be able to distinguish between an unenhanced vein and an enhanced artery.

Paediatric radiology

Every exam will contain some paediatric radiology. This may be in the form of radiographs, fluoroscopy, ultrasound or cross sectional imaging. It is important to know the anatomy of the growing skeleton, and to be able to recognise common normal variants. It is also important to be able to recognise the appearances of the growing skeleton on the different imaging modalities. Candidates must be able to identify all the different parts of the growing bone and you should be able to distinguish between epiphyses, apophyses and epiphyseal growth plates. Candidates who describe an epiphysis or apophysis as a secondary ossification centre, will lose one mark as this answer is only partially correct.

Fetal imaging and neonatal cranial ultrasound

Neither of these are on the syllabus and therefore will not be included in the examination.

Terminology, detail required and common errors

Level of detail required in answers

We seek the degree of detail that would be appropriate for a written radiology report. We are very careful about arrow placement for the examination questions, indicating a single structure or a specific part of a larger structure. The examiners therefore seek accuracy and precision, with highest marks being awarded to specific and accurate details.

Anatomical terms

The mark scheme considers the differences of terminology across the world. We expect answers in English (rather than Latin), using accepted anatomical terms. We explicitly recognize the Terminologia Anatomica, an international standard for anatomical terminology.

Acronyms and abbreviations

Candidates should always avoid using these in their answers. What is commonplace in one institution may not be so elsewhere. Many clinical errors have arisen from the use of acronyms, so their use is strongly discouraged in this exam.

Left and right

Where a paired structure is illustrated, it is absolutely critical to denote whether the left or right is arrowed. This is crucial to safe clinical practice. Marks will be deducted if left or right is not specified on an arrowed paired structure. If, however, a single structure is presented (e.g. the left hand), it is unnecessary to denote left or right.

Spelling mistakes

The exam is not a spelling test and the examiners may overlook minor spelling mistakes or typing errors such as transposed letters, providing the intended answer is unambiguous. Certain anatomical structures however, have similar names, sometimes differing by only one letter (e.g. ileum and ilium). Care should be taken over these as confusion could arise in clinical practice and mistakes in naming similar-sounding structures will be penalised.

Other common mistakes to avoid

Many errors relate to failing to read the question.

- Most questions relate to simply naming the arrowed structure, but some questions are not written in this format. They may test anatomical knowledge related to that particular structure (e.g. name the artery supplying the arrowed structure).
- Some questions very specifically ask for a single answer and candidates who provide two answers, even if both are correct, will be marked down (e.g. name one muscle that attaches to the arrowed structure).
- The question header mimics the detail that would be supplied in clinical practice. Occasionally, further information is provided e.g. help with orientation for a particular image such as ultrasound. Candidate should pay particular attention to this text.