

Preparing for Part I of the ABR Exam

The First Step to Board Certification

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Background

- PhD, University of Wisconsin-Madison 2013
- Medical Physics Resident in Radiation Oncology at NYU Langone Medical Center, completing in June 2015
- Passed ABR Part 1 in August 2010



Outline

- Overview of the exam
 - Eligibility and application process
 - Exam structure
- Preparation for the exam
 - What to study?
 - How to prepare?
 - Resources
 - Strategies for multiple choice questions



Eligibility and Application Process

Enrolled in, and in good standing, or have graduated from

- CAMPEP-accredited program
- DMP program
- Certificate program or
- Medical physics residency



Application packages are sent **one** year early

<http://www.theabr.org>

Make sure to register for the test as soon as possible

- Most of the testing centers have limited seats



Exam Structure

- Computer-based exam (Pearson Vue)
- 2 Sections
 1. General
 - 53 *simple* and 27 *complex questions* → 80 questions
 - 4 hour time limit
 2. Clinical
 - 75 *simple* questions
 - 1 hour time limit



Preparation for the exam

- Go over the ABR website
- Gather the study material
 - Download the study guide (PDF format)
 - Textbooks, notes, Rappex exams
 - Answer the sample questions
- Study style
 - Study group, flash cards, summaries
- Talk to your peers



Topics: General

- The nature and sources of radiation
- Radioactivity
- Ultrasound
- Nuclear magnetic resonance
- Interactions of radiation with matter
- Spatial distribution and transmission of radiation
- Concepts of dosimetry
- Instrumentation and measurement techniques
- Principles of safety
- Methods of Quality Control and Quality Assurance
- Radiobiology
- Radiation Protection
- Basic atomic and nuclear physics
- Mathematics relevant to medical physics
- Statistics



Example: General

- Which statement best describes the phenomenon of pair production?
- A. The electrons and positrons are emitted at 180° to each other.
 - B. Positrons and antineutrinos are produced when the interactions occur.
 - C. Photons with energies greater than 1.02 MeV are necessary for the interactions to occur.
 - D. The total energy of the incident photon is evenly divided between the kinetic energy of the pair of particles

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Example: General

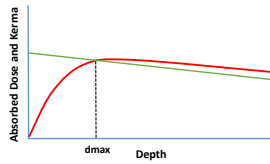
Beyond the depth of maximum dose, which statement best describes the relative behavior of dose and kerma?

- A. Dose and kerma fall off equally.
- B. Kerma falls off faster than dose.
- C. Dose falls off faster than kerma.
- D. Dose falls while kerma rises.
- E. Dose rises while kerma falls.

Examples: General

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Topics: Clinical

- Physiology
- Anatomy
- Biochemistry
- Radiation effects
- Medical uses of radiation sources
- Radiochemistry
- Medical terminology



Example: Clinical

For a patient suspected of having kidney stones, what is the most appropriate examination?

- A. CT
- B. MRI
- C. Abdominal radiography
- D. Endoscopic retrograde cholangiopancreatography
- E. Hysterosalpingogram

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Strategies for Multiple Choice Questions

- Read the **entire** question first
- Identify key words → **all, not, except**
- Eliminate the unlikely choices
- Read all choices before selecting your answer
- Think about units → Gy vs cGy vs mGy
- Be sure before choosing **all of the above** or **none of the above**
- Read the question again



Preparation for the exam

- Familiarize yourself with the Person VUE exam interface
<http://www.pearsonvue.com/ABR/>

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Preparation for the exam

- Familiarize yourself with the Person VUE exam interface <http://www.pearsonvue.com/ABR/>
- Software based calculator designed to emulate the handheld TI-30XS
- Constants Provided by the ABR for Use in the Part 1
 - Know which constants the ABR gives you

Study Material

- Textbooks: Part I-General
 - Medical Imaging Physics, Bill Hendee
 - Physics of Nuclear Medicine, Cherry and Sorenson
 - The Physics of Radiation Therapy, F. Khan
 - Introduction to Radiological Physics and Radiation Dosimetry, F Attix
 - The Physics of Radiotherapy X-rays and Electrons, P Metcalfe
- Raphex Exams
- Class notes
- Textbooks: Part I-Clinical
 - Essential Physics of Medical Imaging, Bushberg et al
 - Radiobiology for the Radiologist, Eric Hall
 - Class notes from anatomy class
- <http://www.theabr.org/ic-rp-landing>

Summary

- Start early and develop a study system
 - Create a schedule of topics to study
 - Tailor a program that fits your studying strengths
 - Familiarize yourself with the Person VUE exam interface
- Remember, Part I wants to test your understanding of the principles

Good Luck !