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, Raphex 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
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

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

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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
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/
Preparation for the exam

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  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-mp-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!