

NEUROSONOLOGY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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THE FULL VERSION STUDY GUIDE**

<https://neurosonology.examzify.com>



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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. BPH originates from which zone of the prostate?**
 - A. Transitional
 - B. Peripheral
 - C. Central
 - D. Anterior fibromuscular stroma
- 2. What is the term that describes when one or both testes has not descended into the scrotum?**
 - A. Cryptorchidism
 - B. Orchitis
 - C. Varicocele
 - D. Hydrocele
- 3. Which of the following is NOT a characteristic of a simple breast cyst?**
 - A. Round or oval shape with thin edge shadow and anechoic content
 - B. Irregular shape with internal echoes
 - C. Anechoic content
 - D. Thin walls
- 4. What are the sonographic findings of nodules that are considered higher risk for malignancy?**
 - A. Hypoechoic, microcalcifications, incomplete halo, abnormal cervical lymph nodes
 - B. Hyperechoic, macrocalcifications, complete halo, normal nodes
 - C. Isoechoic, no calcifications, complete halo, enlarged nodes
 - D. Anechoic, posterior shadowing, complete halo, normal nodes
- 5. Which structure forms the posterior boundary of the prostate?**
 - A. Bladder
 - B. Urogenital Diaphragm
 - C. Rectum
 - D. Levator Ani

- 6. Which ultrasound finding is commonly observed in Graves disease due to hypervascularity?**
- A. Diffuse hypervascularity
 - B. Focal hypoechoic nodules
 - C. Calcifications
 - D. Anechoic cysts
- 7. What type of nodule on a nuclear medicine scan is associated with a malignant thyroid nodule?**
- A. Hot (functioning)
 - B. Warm
 - C. Cold (toxic, non-functioning)
 - D. Autonomous
- 8. Which of the following structures is part of the spermatic cord?**
- A. Ureter, renal artery, and urethra
 - B. Arteries (testicular, cremasteric, and deferential), pampiniform plexus, nerves, lymphatics, vas deferens, and connective tissue
 - C. Epididymis, vas deferens, and scrotal skin
 - D. Nerves, lymphatics, and adipose tissue
- 9. What is the name of the fluid-filled space in the midline of the brain that lies between the lateral ventricles?**
- A. Interventricular Foramen
 - B. Third Ventricle
 - C. Cerebral Aqueduct
 - D. Cavum Septum Pellucidum
- 10. Which of the following is NOT listed as a site for breast cancer metastasis in the material?**
- A. Brain
 - B. Melanoma
 - C. Bladder
 - D. Prostate

Answers

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1. A
2. A
3. B
4. A
5. C
6. A
7. C
8. D
9. D
10. A

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Explanations

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1. BPH originates from which zone of the prostate?

- A. Transitional**
- B. Peripheral
- C. Central
- D. Anterior fibromuscular stroma

Benign prostatic hyperplasia most often originates in the transitional zone, the inner portion of the prostate that surrounds the proximal urethra. As men age, this zone undergoes hyperplasia of both the glandular and stromal components, leading to enlargement that encroaches on the urethral lumen. The result is obstructive urinary symptoms, such as hesitancy, weak stream, and nocturia, due to reduced patency of the urethra at the level where the bladder outlet is narrowed. This site is distinct from where other prostatic conditions arise. The peripheral zone—forming the outer rim of the gland—is where most prostate cancers develop, not BPH. The central zone surrounds the ejaculatory ducts and is less commonly involved in BPH. The anterior fibromuscular stroma has little glandular tissue, so it is not a typical origin for hyperplasia. Hence, the origin of BPH is the transitional zone.

2. What is the term that describes when one or both testes has not descended into the scrotum?

- A. Cryptorchidism**
- B. Orchitis
- C. Varicocele
- D. Hydrocele

Undescended testis, called cryptorchidism, is when one or both testes fail to reach the scrotum during fetal development. Normally the testes begin in the abdomen and descend through the inguinal canal into the scrotum before birth or in early infancy. When descent is incomplete, the testis may lie in the abdomen or inguinal canal and may be nonpalpable on exam. This condition is distinct from other scrotal problems: orchitis is inflammation of the testis, often from infection; a varicocele is dilation of the pampiniform venous plexus producing a bag-of-worms-like feeling; and a hydrocele is fluid around the testicle causing swelling. The clinical importance lies in fertility and cancer risk, since higher temperatures and abnormal testicular environment can impair spermatogenesis and increase malignancy risk. Management typically involves orchiopexy (surgical relocation into the scrotum) if descent has not occurred by around 6 to 12 months of age, to improve fertility potential and reduce cancer risk. Some cases may descend spontaneously in the first months of life, particularly if the testis is palpable.

3. Which of the following is NOT a characteristic of a simple breast cyst?

- A. Round or oval shape with thin edge shadow and anechoic content
- B. Irregular shape with internal echoes**
- C. Anechoic content
- D. Thin walls

Simple breast cysts are fluid-filled spaces that look anechoic on ultrasound, typically round or oval with smooth, thin walls and posterior acoustic enhancement. They should have no internal echoes. An irregular shape with internal echoes, on the other hand, signals complexity—possible debris, hemorrhage, infection, or a solid component—which is not a feature of a simple cyst. So the description of an irregular shape with internal echoes does not fit a simple breast cyst.

4. What are the sonographic findings of nodules that are considered higher risk for malignancy?

- A. Hypoechoic, microcalcifications, incomplete halo, abnormal cervical lymph nodes**
- B. Hyperechoic, macrocalcifications, complete halo, normal nodes
- C. Isoechoic, no calcifications, complete halo, enlarged nodes
- D. Anechoic, posterior shadowing, complete halo, normal nodes

High-risk findings on thyroid ultrasound are features that raise concern for malignancy: a nodule that is markedly hypoechoic compared with the surrounding thyroid tissue, the presence of microcalcifications, an incomplete or irregular halo, and suspicious cervical lymph nodes. Hypoechogenicity means the lesion appears darker than the adjacent thyroid tissue, which often reflects solid, potentially malignant tissue.

Microcalcifications are tiny bright specks within the nodule that are highly associated with papillary thyroid carcinoma. An incomplete halo suggests the lesion isn't fully encapsulated and may invade surrounding tissue, another warning sign. Suspicious cervical lymph nodes—enlarged and with abnormal characteristics like irregular margins or loss of the fatty hilum—point toward possible metastatic spread. In comparison, the other patterns align more with benign nodules: hyperechoic or isoechoic nodules without suspicious features, a complete halo, absence of microcalcifications, and normal lymph nodes. Cystic (anechoic) nodules with a complete halo are also typically benign.

5. Which structure forms the posterior boundary of the prostate?

- A. Bladder
- B. Urogenital Diaphragm
- C. Rectum**
- D. Levator Ani

In the male pelvis, the prostate sits just in front of the rectum, so its posterior surface directly faces the rectal wall. This makes the rectum the posterior boundary of the prostate. Denonvilliers' fascia separates these two structures, but the boundary that lies behind the prostate is the rectum. The bladder sits above the prostate, not behind it, and the urogenital diaphragm and levator ani form parts of the pelvic floor and lateral boundaries rather than the posterior face of the prostate. Clinically, this relationship explains why the posterior aspect of the prostate is accessible via a digital rectal exam and why posterior spread to the rectum is a consideration in prostate surgery.

6. Which ultrasound finding is commonly observed in Graves disease due to hypervascularity?

- A. Diffuse hypervascularity**
- B. Focal hypoechoic nodules
- C. Calcifications
- D. Anechoic cysts

Graves disease drives a diffuse, hyperfunctioning thyroid, and the ultrasound hallmark is increased blood flow throughout the entire gland seen on color Doppler. This diffuse hypervascularity, sometimes described as a thyroid inferno, reflects the widespread, autoimmune-driven stimulation of thyroid tissue and its heightened metabolic state. On grayscale imaging the gland is often diffusely enlarged with a relatively uniform texture, but the key clue is the pervasive vascular signal across the gland. Focal hypoechoic nodules would suggest localized nodular disease rather than a diffuse process. Calcifications are more associated with chronic nodules or malignancy, and anechoic cysts indicate cystic lesions, not the uniform hypervascular pattern seen in Graves.

7. What type of nodule on a nuclear medicine scan is associated with a malignant thyroid nodule?

- A. Hot (functioning)
- B. Warm
- C. Cold (toxic, non-functioning)**
- D. Autonomous

On a thyroid nuclear medicine scan, nodules are judged by how much radiotracer they take up. Cold nodules take up little or none, meaning they are non-functioning relative to the surrounding thyroid tissue. Malignant thyroid nodules tend to be non-functioning because cancerous tissue often loses the ability to trap iodine and concentrate tracer. This contrasts with hot nodules, which are hyperfunctioning and usually represent benign autonomous tissue, and warm nodules, which function like normal thyroid tissue and are also typically benign. So, the pattern most associated with malignancy is a cold, non-functioning nodule. If a cold nodule is seen, it prompts further evaluation with ultrasound and often fine-needle aspiration to assess for cancer.

8. Which of the following structures is part of the spermatic cord?

- A. Ureter, renal artery, and urethra
- B. Arteries (testicular, cremasteric, and deferential), pampiniform plexus, nerves, lymphatics, vas deferens, and connective tissue
- C. Epididymis, vas deferens, and scrotal skin
- D. Nerves, lymphatics, and adipose tissue**

The spermatic cord is a fascial bundle that carries more than just the vas deferens into the scrotum; it contains neural elements, lymphatic vessels, vascular structures, and supportive connective tissue, all wrapped in fascia. Nerves provide autonomic and sensory input to the testis and cremaster muscle, lymphatics drain the testicular and scrotal tissues, and adipose tissue is part of the cord's loose connective tissue that cushions and surrounds the vessels and ducts. While the cord also contains arteries, veins, and the vas deferens, the trio of nerves, lymphatics, and adipose tissue accurately reflects key components housed within the cord, making this combination the best fit among the options. The other choices point to structures outside the cord or mix components not typically described as cord contents.

9. What is the name of the fluid-filled space in the midline of the brain that lies between the lateral ventricles?

- A. Interventricular Foramen
- B. Third Ventricle
- C. Cerebral Aqueduct
- D. Cavum Septum Pellucidum**

The Cavum septum pellucidum is the fluid-filled space in the midline that lies between the two lateral ventricles. It sits between the leaves of the septum pellucidum, just above the roof of the ventricles and anterior to the third ventricle. This space is a developmental feature that can persist as CSF-filled gaps on imaging in some individuals. The other structures are not spaces between the lateral ventricles: the interventricular foramen is a channel connecting the lateral ventricles to the third ventricle, the third ventricle is a midline ventricle, and the cerebral aqueduct connects the third and fourth ventricles. Hence, the Cavum septum pellucidum best matches the description.

10. Which of the following is NOT listed as a site for breast cancer metastasis in the material?

A. Brain

B. Melanoma

C. Bladder

D. Prostate

The material you're studying outlines specific sites where breast cancer is said to metastasize. In that resource, the sites it lists include melanoma, bladder, and prostate, but it does not include the brain. So brain is the one not listed, making it the correct choice for this question. Keep in mind that, in real-world practice, brain metastases from breast cancer can occur, but the question is tied to what the particular material lists. The other options fit because they appear in that material's list of potential metastatic sites.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://neurosonology.examzify.com>

We wish you the very best on your exam journey. You've got this!

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