BREATHING PATTERNS

Study Guide and Practice Questions
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Are you ready to learn the ins and out of breathing patterns in Respiratory Care? I sure hope so because that is what this study guide is all about.

As a Respiratory Therapist (or student), it goes without saying that you absolutely must fully know and understand everything there is to know about the different types of breathing patterns.

This is especially true when it comes to preparing for the TMC Exam.

The good news is — we created this study guide to help you do just that.

So if you’re ready, let’s go ahead and dive right in!
3 Reasons for Learning the Breathing Patterns:

1. You will be tested on this information in Respiratory Therapy School.
2. You will see this information again when you take the TMC Exam and Clinical Sims.
3. You will need to recognize the breathing patterns once you start seeing your own patients.

So taking that into consideration, you can easily see the importance of mastering the breathing patterns — especially the irregular ones.

That good news is, this study guide can help you do just that. So if you’re ready, let’s go ahead and dive right in.

What is a Breathing Pattern?

As humans, our breathing pattern is similar to our heartbeat in that we do not have to consciously think about it — it just occurs automatically.

This response is generated by the medullary respiratory center in the brain.

Although this stimulus comes from the brain, there are quite a few conditions that can abnormal and irregular breathing patterns.

We are going to talk about those below.

We actually put together a YouTube video on this topic that I think will be helpful for you. Click Here to Check It Out
**Types of Breathing Patterns:**

<table>
<thead>
<tr>
<th>Breathing Pattern</th>
<th>Description</th>
<th>Associated Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eupnea</strong></td>
<td>Normal breathing, including a normal respiratory rate (12 - 20 breaths per minute), depth, and rhythm.</td>
<td>Normal, healthy people.</td>
</tr>
<tr>
<td><strong>Tachypnea</strong></td>
<td>Increased respiratory rate greater than 20 breaths per minute.</td>
<td>Hypoxemia, respiratory distress, fever, pain, anxiety.</td>
</tr>
<tr>
<td><strong>Bradypnea</strong></td>
<td>Decreased respiratory rate less than 12 breaths per minute.</td>
<td>Sedation, alcohol, fatigue, drug overdose.</td>
</tr>
<tr>
<td><strong>Apnea</strong></td>
<td>No breathing.</td>
<td>Cardiac arrest, respiratory arrest, airway obstruction, drug overdose, sleep apnea.</td>
</tr>
<tr>
<td><strong>Hyperpnea</strong></td>
<td>Increased respiratory rate, rhythm, and depth of breathing.</td>
<td>CHF, metabolic or CNS disorders.</td>
</tr>
<tr>
<td><strong>Cheyne-stokes</strong></td>
<td>An abnormal breathing pattern</td>
<td>Increased intracranial</td>
</tr>
<tr>
<td><strong>Biot's</strong></td>
<td>Rapid breathing with irregular periods of apnea alternating with periods in which four or five breaths of identical depth are taken. Similar to Cheyne-Stokes except that each breath has the SAME depth.</td>
<td>Increased intracranial pressure, meningitis.</td>
</tr>
<tr>
<td><strong>Kussmaul's</strong></td>
<td>Increased respiratory rate and depth, with an irregular rhythm. This is a labored form of breathing that is usually associated with diabetic ketoacidosis. Shortcut: Remember: Deep and Fast.</td>
<td>Diabetic ketoacidosis, renal failure.</td>
</tr>
<tr>
<td><strong>Apneustic</strong></td>
<td>An abnormal pattern of breathing characterized by deep, gasping inspiration with a</td>
<td>Head trauma, severe brain hypoxia, lack of blood flow to the brain.</td>
</tr>
</tbody>
</table>
pause at full inspiration followed by a brief, insufficient release.

| Orthopnea      | Difficulty breathing while lying down. | CHF, fluid overload, chronic lung disease. |

Example TMC Practice Question:

A 69-year-old male patient with congestive heart failure states that he has trouble breathing while lying flat. Which of the following best describes this condition?

A. Hyperpnea  
B. Orthopnea  
C. Apneustic  
D. Cheyne-stokes

For the TMC Exam, you must be familiar with the common breathing patterns, as we discussed earlier in this article.

Orthopnea is a condition where a patient has difficulty breathing while lying flat. In such cases, they may need extra pillows to raise the head and body.

One more note to remember for the TMC Exam: Whenever you have a question that mentions orthopnea, you always associate that with CHF and/or pulmonary edema.

The correct answer is: B. Orthopnea
Want More Premium TMC Practice Questions?

This practice question was taken straight from our TMC Test Bank. It’s one of our most-recommended guides where we break down hundreds of these practice questions that cover every topic you need to know for the TMC Exam.

Each question comes with a detailed rationale that explains exactly why the answer is correct. So if you thought this was helpful, definitely consider checking it out. Click Here to Learn More

Also, our Practice Questions Pro members are receiving these premium practice questions via email every single day. Small bits of knowledge over time adds up to huge results. Click Here for Daily Practice Questions

Now that you got the basics down, let’s go through some more helpful practice questions so that you’ll truly master and learn this information.
1. What is the best technique to assess a patient’s respirations accurately?
Place a hand on the upper abdomen and observe the rise and fall of the chest.

2. What is Apnea?
It is the complete absence of breathing.

3. What is Eupnea?
Normal breathing.

4. What is Biot’s Breathing?
Short episodes of rapid, uniformly deep inspirations, followed by 10-30 seconds of apnea. It is most often seen in patients with meningitis.

5. What is Hyperpnea?
Increased depth (volume) of breathing with or without an increased frequency.

6. What is Hyperventilation?
An increased rate or depth of breathing that causes an increase in CO2.

7. What is Tachypnea?
A rapid rate of breathing when the respiratory rate is greater than 24.

8. What is Cheyne-Stokes Breathing?
It is a gradual increase and then a decrease in the rate and volume of breathing, followed by 5-10 seconds of apnea. It most often occurs in patients with cerebral disorders and CHF.

9. What is Kussmaul’s Breathing?
Both an increased depth (hyperpnea) and rate of breathing. With this pattern, the CO2 decreases, while the oxygen increases.

10. What is Orthopnea?
A condition in which an individual is able to breathe most comfortably only in an upright position. They have difficulty breathing while lying down.

11. What is Dyspnea?
Difficulty in breathing, of which the individual is aware. It is also called – shortness of breath.

12. What is the purpose of pursed-lip breathing?
To prevent the air trapping caused by bronchiolar airway collapse by increasing the back pressure; it also helps to aid with panic attacks.

13. How do you perform pursed-lip breathing?
Take a deep breath in and hold; then breathe out with your lips puckered like you’re blowing out a candle.

14. The physiological effects of pursed-lip breathing will do what?
It will decrease the patient’s respiratory rate by increasing the expiratory rate.

15. What are the diseases that are helped with pursed lip breathing?
COPD and emphysema.

16. What is the purpose of abdominal diaphragmatic breathing exercises?
This promotes a greater use of the diaphragm, decreases the work of breathing by slowing your breathing rate, decreases oxygen demand, uses less effort and energy to breathe, and helps to prevent atelectasis.
17. What is a disease that will benefit from diaphragmatic breathing?
- COPD

18. What is lateral costal breathing?
- Unilateral or bilateral costal breathing exercises increase ventilation to the lower lobes and aid in diaphragmatic breathing.

19. What patients use lateral costal breathing?
- Post-surgery, pregnancy, or ascites patients.

20. What are the purposes of breathing exercises?
- To promote efficient use of the diaphragm, to decrease the use of the rib cage, and to improve cough and the efficiency of ventilation.

21. What are the 4 phases of a cough?
- Irritation, inspiration, compression, and expulsion.

22. What is a direct cough?
- A deliberate maneuver that is taught, supervised, and monitored.

23. What is the incentive spirometer technique?
- A technique using visual feedback to encourage patients to take a slow, deep sustained inspiration.

24. What is a sustained maximal inspiration?
- A method to get the patient to hold the inspiratory effort as long as possible.

25. What is Apneustic Breathing?
- A prolonged inspiration and a regular expiration. It is caused by a brain injury.

26. What is Paradoxical Breathing?
The chest depresses on inspiration, and on expiration, the chest puffs. It is caused by a chest injury.

27. How would you describe asthmatic breathing?
A prolonged expiration and a regular inspiration.

28. What is Platypnea?
When the patient can breathe better when laying down.

29. What is Orthopnea?
When the patient can breathe better when sitting up.

30. What can result from hypoventilation?
Hypercapnia.

31. What does hypercapnia mean?
Increases arterial PCO2.

32. How is hypercapnia counteracted?
By an increased ventilation rate and depth.

33. What is hyperventilation?
An increased ventilation rate and depth.

34. What can hyperventilation cause?
Hypocapnia.

35. What can hypocapnia cause?
A decrease in the arterial PCO2.

36. Which of the following breathing patterns is MOST indicative of increased intracranial pressure?
Cheyne-Stokes and Biot's breathing.
So there you have it. That wraps up our study guide on the different breathing patterns that you need to know. I hope that this information was helpful for you.

Again, knowing the ins and outs of the breathing patterns is (obviously) very important for Respiratory Therapists and students. Hopefully this guide can help you boost your knowledge of this topic.

Not only must you know this information for your career, let’s take it back a step.

**You MUST know this stuff for the TMC Exam as well!**

Not to worry — if you study and prepare like you should, you’ll be just fine.

In fact, our materials have already helped thousands of students pass the exams.

Can we help you next??

**You may be interested in the following:**

- **TMC Test Bank** – Our massive bank of practice questions just like the ones we took you through earlier in this guide.
- **Hacking the TMC Exam** – Our video course that shares our top tips, tricks, and insights that we learned while taking (and passing) the exam. Ready to get a leg up?
- **Practice Questions Pro** – This gives our members access to our premium TMC Practice Questions and we send them to their inbox on a daily basis. Small bits of knowledge over time adds up to HUGE results.
Keep in mind, our materials are only for those who are truly serious about passing the board exams.

I definitely think you fall into that category, otherwise you wouldn’t have made it this far.

Thank you so much for reading all the way to the end! I wish you the best of luck on your journey, and as always, breathe easy my friend. 😊


