University of Central Florida (UCF) SPA3101 Anatomy and Physiology of Speech, Language, and Hearing Practice Exam 2 (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. Which muscle pulls the hyoid bone forward and upward?

   A. Stylohyoid

   B. Geniohyoid

   C. Mylohyoid

   D. Digastric

2. What is the shape of the arytenoid cartilages?

   A. Cylindrical

   B. Pyramid

   C. Disc

   D. Square

3. What is the primary function of the vocalis muscle?

   A. To assist in breathing

   B. To stabilize the larynx

   C. To vibrate the vocal folds for sound production

   D. To enhance vocal loudness

4. Which method allows for the observation of vocal fold vibration in slow motion?

   A. Laryngoscopy

   B. Direct Laryngoscopy

   C. Endoscopy

   D. Videostroboscopy

5. What type of cartilage are the arytenoid cartilages primarily composed of?

   A. Hyaline

   B. Elastic

   C. Fibrous

   D. Both hyaline and elastic

6. What is the purpose of extrinsic muscles in relation to the vocal folds?

A. To help with pitch modulation

B. To stabilize the larynx

C. To open the vocal folds

D. To assist in swallowing

7. What is the primary function of the lateral cricoarytenoid?

A. To abduct the vocal folds

B. To adduct the vocal folds

C. To increase tension in the vocal folds

D. To relax the arytenoids

8. What is one of the primary functions of the thyrovocalis muscle?

A. To increase vocal fold length

B. To decrease vocal fold mass

C. To act as a major abductor

D. To maintain vocal fold tension

9. What are the three parts that make up the normal voice?

A. Hearing system, Laryngeal system, Auditory system

B. Respiratory system, Laryngeal system, Supralaryngeal system

C. Vocal tract, Vocal folds, Respiratory system

D. Throat, Mouth, Nose

10. What parameters are used to describe a "voice"?

A. Pitch, loudness, and quality

B. Volume, frequency, and resonance

C. Intensity, duration, and tone

D. Rate, rhythm, and modulation

Answers

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

Explanations

1. Which muscle pulls the hyoid bone forward and upward?

A. Stylohyoid

B. Geniohyoid

C. Mylohyoid

D. Digastric

The mylohyoid muscle plays a crucial role in pulling the hyoid bone forward and upward due to its anatomical positioning and function. It is a thin, flat muscle that forms the floor of the mouth and is situated horizontally. When the mylohyoid contracts, it not only supports the base of the tongue but also exerts a force that elevates the hyoid bone and moves it anteriorly. This action is essential during swallowing and speaking, as it helps to create the necessary space in the oral cavity and contributes to the movement of the larynx during these activities. The unique orientation and attachment points of the mylohyoid muscle enable it to fulfill this specific function effectively.

2. What is the shape of the arytenoid cartilages?

A. Cylindrical

B. Pyramid

C. Disc

D. Square

The arytenoid cartilages are correctly described as pyramid-shaped structures located in the larynx. Their pyramid form allows for a wide range of movement, which is essential for the regulation of vocal folds during phonation. Each arytenoid cartilage has a base and an apex, which contribute to its triangular configuration. This unique shape facilitates their role in opening and closing the vocal cords, as well as enabling adjustments to tension and position for sound modulation. Such movement is crucial for producing a variety of pitches and tones in speech and singing. The anatomical design of the arytenoid cartilages plays a significant role in the intricate mechanics of voice production, making their pyramidal shape essential for the function they serve in the vocal apparatus.

3. What is the primary function of the vocalis muscle?

A. To assist in breathing

B. To stabilize the larynx

C. To vibrate the vocal folds for sound production

D. To enhance vocal loudness

The primary function of the vocalis muscle is to vibrate the vocal folds for sound production. This muscle is a part of the intrinsic muscles of the larynx and plays a crucial role in modulating the tension and length of the vocal folds. When the vocalis muscle contracts, it allows for the fine-tuning of the pitch produced by the vocal cords, as changes in tension affect the frequency of the vibration. This is essential for phonation, or the production of voiced sounds, enabling a range of pitches and tones in spoken language or singing. While other muscles in the larynx have roles such as assisting in breathing or stabilizing the larynx, the specific responsibility of the vocalis muscle is centered on sound production through its direct impact on the vocal folds.

4. Which method allows for the observation of vocal fold vibration in slow motion?

A. Laryngoscopy

B. Direct Laryngoscopy

C. Endoscopy

D. Videostroboscopy

The method that allows for the observation of vocal fold vibration in slow motion is videostroboscopy. This technique utilizes a strobe light that flashes in synchronization with the vocal fold vibrations, enabling clinicians to capture and visualize the rapid movement of the vocal folds at a slower rate. This allows for a detailed examination of the vocal fold cycles, helping in the assessment of various voice disorders and providing insight into the functional capabilities of the larynx. The advantage of videostroboscopy lies in its ability to create a sequence of images that can depict the vibratory pattern of the vocal folds, something that regular laryngoscopy cannot do as effectively since it does not provide the same time-scaling effect. Other methods, such as direct laryngoscopy and endoscopy, do not utilize the strobe light and instead allow for direct visualization of the laryngeal structures without capturing the vibratory function in real time, which makes them less effective for observing the dynamics of vocal fold movement.

5. What type of cartilage are the arytenoid cartilages primarily composed of?

A. Hyaline

B. Elastic

C. Fibrous

D. Both hyaline and elastic

The arytenoid cartilages are primarily composed of both hyaline and elastic cartilage, which is critical for their function in the larynx. Hyaline cartilage provides the necessary strength and support for the framework of the larynx, allowing for the stability of the vocal folds during phonation. The elastic component allows for flexibility and the ability to return to shape after deformation, which is important when adjusting the tension of the vocal cords for pitch control. This combination of cartilaginous tissue types enables the arytenoid cartilages to perform their essential roles in the modulation of voice and protection of the airway during swallowing. Their unique structure is vital for the complex movements required in vocalization, which involves both rapid adjustments and sustained positions.

6. What is the purpose of extrinsic muscles in relation to the vocal folds?

A. To help with pitch modulation

B. To stabilize the larynx

C. To open the vocal folds

D. To assist in swallowing

The purpose of extrinsic muscles in relation to the vocal folds primarily involves stabilizing and positioning the larynx within the neck. These muscles connect the larynx to external structures, providing support, stability, and the ability to move the larynx up and down during various activities, including speech and swallowing. While extrinsic muscles do facilitate certain actions related to the vocal folds, such as assisting in swallowing or playing a role in pitch modulation indirectly, their main role is focused on the stabilization of the larynx. By anchoring the larynx, these muscles ensure that the intrinsic muscles, which directly manipulate the vocal folds, can function optimally. Understanding this helps clarify why the associated role of stabilization is critical because without stable positioning, the efficiency of vocal fold vibration and phonation would be undermined. Additionally, while the extrinsic muscles can influence the opening of the vocal folds through their movement of the larynx, a primary action of this set of muscles does not include directly opening the vocal folds; that role predominantly belongs to the intrinsic muscles. Consequently, recognizing the primary purpose of extrinsic muscles is essential for grasping the overall mechanisms involved in voice production and laryngeal function.

7. What is the primary function of the lateral cricoarytenoid?

A. To abduct the vocal folds

B. To adduct the vocal folds

C. To increase tension in the vocal folds

D. To relax the arytenoids

The lateral cricoarytenoid muscle plays a crucial role in the adduction of the vocal folds. When this muscle contracts, it pulls the arytenoid cartilages toward each other, which results in the vocal folds being brought together. This action is essential for phonation because it enables the vocal folds to come into contact, allowing air pressure from the lungs to create sound as it passes through the closed folds. Understanding the function of the lateral cricoarytenoid is vital for grasping how vocal fold control influences speech production and other vocalizations. It is involved not just in producing sounds but also in varying pitch and volume by adjusting the tension and position of the vocal folds during different speaking or singing tasks.

8. What is one of the primary functions of the thyrovocalis muscle?

A. To increase vocal fold length

B. To decrease vocal fold mass

C. To act as a major abductor

D. To maintain vocal fold tension

The thyrovocalis muscle plays a crucial role in the function of the vocal folds by maintaining vocal fold tension. This tension is essential for phonation, as it helps to adjust the pitch and quality of the voice. When the thyrovocalis contracts, it pulls the vocal folds closer together and increases their stiffness, which is necessary for producing sound of varying pitch. Maintaining appropriate tension allows for greater control over pitch modulation during speech and singing. While other muscles are responsible for changing the length and mass of the vocal folds or acting as abductors, the thyrovocalis is specifically involved in fine-tuning the tension of the vocal folds to ensure optimal vocal performance. This function is critical for the adjustments required when producing different frequencies and qualities of sound.

9. What are the three parts that make up the normal voice?

A. Hearing system, Laryngeal system, Auditory system

B. Respiratory system, Laryngeal system, Supralaryngeal system

C. Vocal tract, Vocal folds, Respiratory system

D. Throat, Mouth, Nose

The normal voice is produced through a complex process that involves three main systems: the respiratory system, the laryngeal system, and the supralaryngeal system. The respiratory system provides the necessary airflow needed for voice production. It involves the lungs and the muscles of respiration, which generate air pressure that is essential for phonation. The laryngeal system, which includes the vocal folds (or vocal cords), is where the actual sound is produced. When air from the respiratory system passes through the closed vocal folds, it causes them to vibrate, creating sound waves. The supralaryngeal system encompasses the structures above the larynx, including the pharynx, oral cavity, and nasal cavity. This system plays a crucial role in shaping and modifying the sound produced by the larynx. It influences the quality of the voice by determining its resonance and articulation. Together, these three systems work in harmony to create the rich and varied sounds that comprise normal human voice production.

10. What parameters are used to describe a "voice"?

A. Pitch, loudness, and quality

B. Volume, frequency, and resonance

C. Intensity, duration, and tone

D. Rate, rhythm, and modulation

The choice focusing on pitch, loudness, and quality is fundamentally correct because these parameters are essential characteristics used to describe the voice effectively. Pitch refers to the perceived frequency of sound; it determines whether a voice appears to be high or low. Loudness relates to the intensity of the sound and how strong or soft it is perceived by listeners. Quality encompasses the overall texture and characteristics of the voice, including its brightness or warmth, which can convey emotions and individual vocal traits. These three parameters work together to create a complete vocal profile, helping to distinguish different voices and their expressive capabilities. Understanding these aspects is crucial in fields like speech pathology, music, performance, and communication studies, where voice assessment is paramount. The other options propose parameters that, while relevant to auditory characteristics, do not holistically encapsulate the fundamental aspects of voice.