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Rajashree Lad

DECODE PHYSIOTHERAPY through MCQs

(For Undergraduates & all Competitive Exams)



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(For Undergraduates & all Competitive Exams)

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Dedicated to

the **countless individuals** whose unwavering dedication to the field of physiotherapy illuminates the path for future healers.

the **students**, tirelessly pouring over textbooks, embracing the challenges of learning, and aspiring to make a difference in the lives of those in need.

the **educators**, whose passion for teaching and sharing knowledge fuels the flames of curiosity and fosters the growth of the next generation of physiotherapists.

the **practitioners**, navigating the intricate dance between science and compassion, using their skills to bring relief, restore function, and empower individuals on their journey to wellness.

the **researchers**, relentlessly exploring the frontiers of physiotherapy, pushing boundaries, and contributing to the ever-expanding body of knowledge that shapes the future of the profession.

the **patients**, whose resilience and trust inspire us to continually strive for excellence in our understanding and application of physiotherapeutic principles.

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Preface

Welcome to the world of Multiple-Choice Questions (MCQs) in Physiotherapy!

This book has been meticulously crafted to serve as a valuable resource for students, practitioners, and anyone interested in mastering the diverse and dynamic field of physiotherapy through the lens of objective assessments.

Physiotherapy is a discipline that bridges the gap between science and the art of healing. As the scope and complexity of physiotherapeutic practices continue to evolve, the need for comprehensive and accessible learning materials becomes increasingly crucial.

This MCQ book aims to meet that demand by offering a structured and engaging approach to assessing your knowledge across various facets of physiotherapy.

The questions covered in the book present a broad spectrum of topics, ranging from basic kinesiology, kinesiotherapy, electrotherapy to rehabilitation, and specialized areas such as neurology and musculoskeletal physiotherapy, cardiopulmonary physiotherapy, physiotherapy in geriatrics, obstetrics and gynecology.

Whether you are a student preparing for examinations, a practicing physiotherapist seeking to refresh your knowledge or an enthusiast eager to delve into the intricacies of the profession, these MCQs are designed to challenge, reinforce, and expand your understanding.

Key Features of the Book:

1. **Comprehensive coverage:** Meticulously designed MCQs cover the fundamental principles and advanced concepts in physiotherapy and ensure a holistic learning experience.
2. **Clear explanations:** Detailed explanations accompanied with each question provide insights into the rationale behind correct answers, and clarify the common misconceptions.
3. **Real-world relevance:** Application-based coverage enhances the practical applicability of your knowledge that mirrors the challenges faced in clinical settings.

4. **Self-assessment tools:** Regular self-assessment is integral to the learning process. Use these MCQs to gauge your progress, identify areas for improvement, and tailor your study strategy accordingly.

Remember, learning is a journey, not a destination. Embrace the opportunity to challenge yourself, discover new perspectives, and reinforce your commitment to the pursuit of excellence in physiotherapy.

We hope, this MCQs book will serve as a valuable companion on your educational and professional voyage, fostering a deeper appreciation for the intricacies of the human body and the science of rehabilitation.

Happy Learning!

Swati A Bhise
Rajashree Lad



Acknowledgments

First and foremost, we are indebted to our mentors, whose expertise, guidance, and patience have been instrumental throughout this journey. Their unwavering belief in our abilities and their insightful feedback helped us shape the content and ensured its accuracy.

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We are deeply grateful to the educators and professionals in the field of physiotherapy who generously shared their knowledge, experience, and practical insights. Their willingness to contribute to this project greatly enriched the book, making it a comprehensive resource for learners and practitioners alike.

We extend our heartfelt appreciation and profound gratitude to each and every individual who played a significant role in bringing the book *DECODE Physiotherapy through MCQs* to fruition. This endeavor would not have been possible without the unwavering support, encouragement, and valuable contributions from a diverse group of people.

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Our family and loved ones deserve our thanks for their patience, understanding, and unconditional love. I, Swati A Bhise, extend my special thanks to my husband Avinash and my son Aditya and my parents, whose unwavering support gave me the strength to dedicate countless hours to this project.

We want to express our gratitude to the readers and learners for whom we have conceived the idea of publishing this book. We hope that the content presented here will serve as a valuable resource on your journey to explore and understand the intricacies of Physiotherapy through a comprehensive collection of multiple-choice questions.

We extend our special thanks to Mr Satish Kumar Jain (Chairman) and Mr Varun Jain (Managing Director), M/s CBS Publishers and Distributors Pvt Ltd for their wholehearted support in the publication of this book. We have no words to describe the role, efforts, inputs and initiatives undertaken by Mr Bhupesh Aarora [Sr Vice President – Publishing & Marketing (Health Sciences Division)] for helping and motivating us.

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To conclude, we can say with humility that the completion of this book is a testament to the collective efforts of an amazing group of individuals, and we are humbled and honored to have them as a part of this collaborative endeavor.

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Nigar Nisar Shikalgar, Shubhangi Patil



16. In high pressure mercury vapor lamp, heat produced inside the burner causes some quartz to change into _____.

- a. Argon
- b. Mercury
- c. Silicon gel
- d. Tridymite

Explanation

In high pressure mercury vapor lamp, the heat produced inside the burner causes some of the quartz to change to another form of silica called tridymite. Tridymite is opaque to ultraviolet rays and therefore the total output of the lamp gradually falls as the proportion of tridymite increases.

Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 15.

17. UVR treated skin condition characterized by absence of melanocytes is known as _____.

- a. Vitiligo
- b. Psoriasis
- c. Acne
- d. Edema

Explanation

Vitiligo is a condition in which destruction of melanocytes in local areas causes white patches to appear on skin. It can be treated with tropical Psoralens and UVR, both UVA and UVB can stimulate melanocytes.

Reference: Khokhar. *Electrotherapy for Physiotherapists*, 3rd edition. Bharat Bharati Prakashan and Co.; 2007. p. 36.

18. Psoralen is given _____ hours prior to treatment.

- a. 24 hours
- b. 10 hours
- c. 2 hours
- d. 48 hours

Explanation

Patients on a PUVA regimen take a sensitizing drug Psoralen, two hours before exposure to UVA rays. The presence of the drug in the skin increases photosensitivity by absorbing the ultraviolet and transferring the energy to adjacent cells.

Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 163.

19. Locally _____ is added to a bath prior to Leeds regimen in ultraviolet treatment.

- a. Gel
- b. Coal tar
- c. Ice
- d. Water

Ans.

- 16. d
- 17. a
- 18. c
- 19. b

Explanation

In the Leeds regimen the sensitivity of the patient's skin to UVR is increased by the local application of coal tar, added to a bath prior to treatment.

Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 163.

20. Approximate latency period for E4 dose of UVR is _____.

- a. 7 hours b. 5 hours
c. 1–4 hours d. 8 hours

Explanation

Standard dosage of ultraviolet rays (E1–E4) classified by erythema reaction.

Dose	Latent period (hours)	Appearance	Pigmentation	Desquamation
E1	Up to 12	Slightly pink	Nil	Nil
E2	4–6	Red	Slight	Powdery
E3	1–4	Fiery, red and painful	Marked	In sheets
E4	As E3 but with the formation of blisters			

Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 161.

21. Wavelength of UVA is _____ nm.

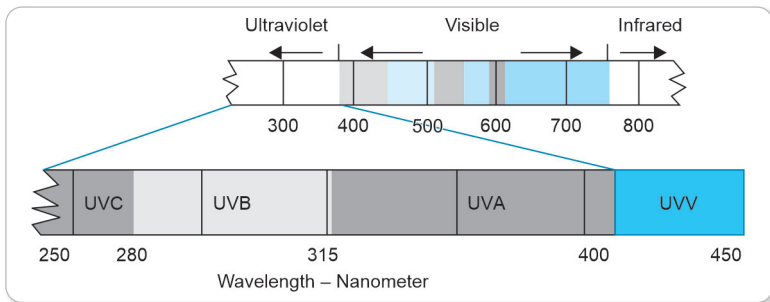
- a. 315–400 nm b. below 280 nm
c. 150 nm d. 250 nm

Explanation

Ultraviolet radiation is electromagnetic energy, which is invisible to human eyes, with wavelengths between 100 nm–400 nm. Wavelength of UVA is 315–400 nm.

Ans.

20. c
21. a



Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 155.

Explanation

LASER is an acronym for Light Amplification by Stimulated Emission of Radiation. Electromagnetic radiation transmits energy through space.

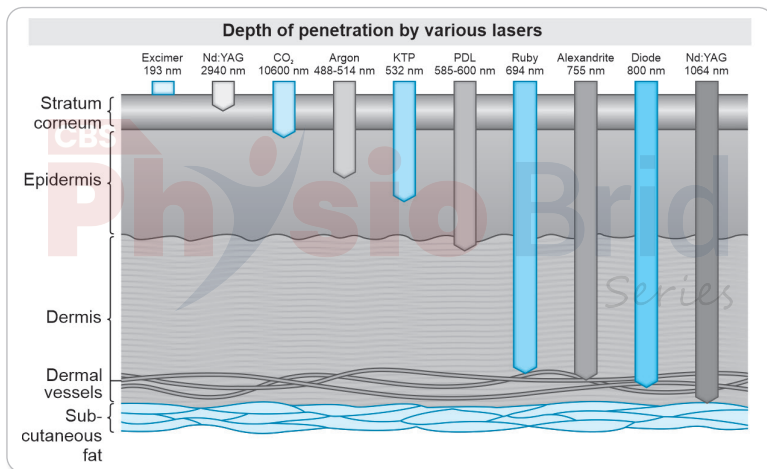
Reference: Meena. *Electrotherapy: Principles and Practice*, 2nd edition. CBS Publishers & Distributors Pvt. Ltd.; 2023. p. 299.

26. Useful depth of penetration of infrared laser is _____.

- a. 30 mm b. 30 nm
c. 1.5 cm d. 30 μm

Explanation

The depth of penetration of infrared laser is 1.5 cm according to recent studies.



Reference: Meena. *Electrotherapy: Principles and Practice*, 2nd edition. CBS Publishers & Distributors Pvt. Ltd.; 2023. p. 307.

Ans.

26. c
27. b

27. Which formula states Joule's law?

- a. $H = R^2It$ b. $H = I^2Rt$
c. $I = Qt^2$ d. $H = It^2$

Explanation

Joule's Law—The heating effect of an electric current (I) flowing through a conductor of resistance R for a time t is equal to I^2Rt .

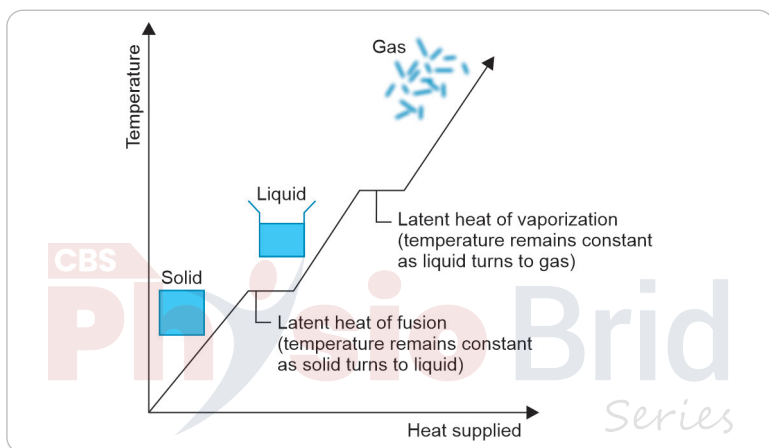
Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 225.

67. 1 g of ice at 0°C requires 336 joules of energy to be converted into 1 g of water at 0°C.

- a. Latent heat of fusion
- b. Latent heat of vaporization
- c. Latent heat of condensation
- d. None of these

Explanation

Specific amount of energy is required to change the solid form of a substance into liquid. This energy is called latent heat of fusion. 1 g of ice at 0°C requires 336 Joules of energy to be converted into 1 g of water at 0°C.



Reference: Forster & Palastanga. *Clayton's Electrotherapy: Theory and Practice*, 8th edition. CBS Publishers & Distributors Pvt. Ltd.; 2005. p. 5.

68. The thickness of wax layering in a paraffin wax bath should be at least.

- a. 2–3 mm
- b. 9 mm
- c. 11 mm
- d. 6 mm

Ans.

- 67. a
- 68. a
- 69. c

Explanation

Paraffin wax method is repeated 6–8 times to produce a coating of wax 2 or 3 mm thick over the body part, and then wrapped in a plastic bag or paper cover to limit the rate of heat loss to the air.

Reference: Khokhar. *Electrotherapy for Physiotherapists*, 3rd edition. Bharat Bharati Prakashan and Co.; 2007. p. 206.

69. In case of cervical traction, weight should not exceed _____ of body weight.

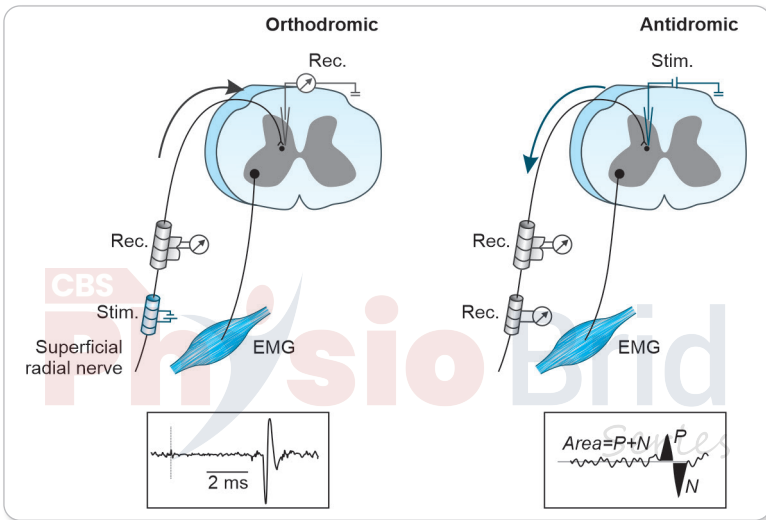
- a. $\frac{1}{2}$ (half)
- b. $\frac{1}{4}$ (one fourth)
- c. $\frac{1}{7}$ (one seventh)
- d. $\frac{1}{5}$ (one fifth)

80. In orthodromic sensory conduction, stimulation site is _____.

- a. Distal
- b. Proximal
- c. Motor point
- d. Neuromuscular junction

Explanation

Orthodromic conduction is the physiological direction of nerve conduction. The orthodromic conduction for motor nerve is from proximal to distal whereas, for sensory nerve it is from distal to proximal.



Reference: Meena. *Electrotherapy: Principles and Practice*, 2nd edition. CBS Publishers & Distributors Pvt. Ltd.; 2023. p. 382.

81. At supramaximal stimulus, H-reflex response will be _____.

- a. Facilitated
- b. Inhibited
- c. Not changed
- d. Absent

Ans.

- 80. a
- 81. b

Explanation

The amplitude of the H-reflex increases as more spindle afferents are activated. However, as stimulus intensity increases further causing motor axon activation, the H-reflex amplitude begins to decrease as more of the reflex volley is blocked in the motor axons by antidromically conducted motor impulses toward the spinal cord.

8. In type IIA muscle fiber, the capacity of resistance to fatigue is _____.

- a. High
- b. Intermediate
- c. Low
- d. Very low

Explanation

The type IIA muscle fiber generates a great amount of tension; these fibers are geared toward aerobic metabolism.

Muscle fiber types and resistance to fatigue

Characteristics	Type I	Type IIA	Type IIB
Resistance to fatigue	High	Intermediate	Low
Capillary density	High	High	Low
Energy system	Aerobic	Aerobic	Anerobic
Diameter	Small	Intermediate	Large
Twitch rate	Slow	Fast	Fast
Maximum muscle-shortening velocity	Slow	Fast	Fast

Reference: Kisner, Colby, Borstad. *Therapeutic Exercise: Foundations and Techniques*, 6th edition. Philadelphia: F.A. Davis Company; 2012. p. 162.

9. Exercise duration is _____ training or treatment program.

- a. Duration of session per day
- b. Duration of sessions per week
- c. Duration of sessions per month
- d. Whole duration

Explanation

Exercise duration is the total time frame of a whole training program per day. Frequency is the number of exercise sessions per day or per week.

Reference: Kisner, Colby, Borstad. *Therapeutic Exercise: Foundations and Techniques*, 6th edition. Philadelphia: F.A. Davis Company; 2012. p. 174.

10. All of the following are the signs and symptoms of muscle fatigue; EXCEPT:

- a. Smooth active movement
- b. Inability to complete the movement patterns
- c. Substitute motions
- d. Decline in peak torque

Ans.

- 8. b
- 9. a
- 10. a

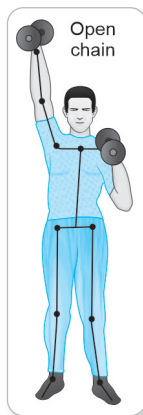
13. In open-chain exercises, all of the following events occur; EXCEPT:

- a. Distal segment moves in space.
- b. Resistance is applied to the moving segment.
- c. External stabilization is usually required.
- d. Interdependent joint movement occurs.

Explanation

Open-chain exercises involve motion of distal segments, without causing adjacent motion; hence, the movement is independent. Examples are upper extremity exercises in standing position and exercises with dumbbells.

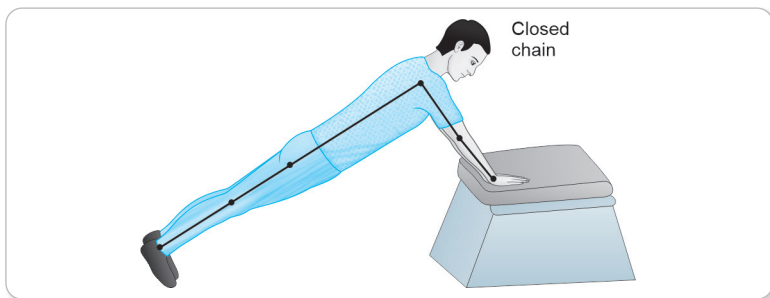
Reference: . Kisner, Colby, Borstad. *Therapeutic Exercise: Foundations and Techniques*, 6th edition. Philadelphia: F.A. Davis Company; 2012. p. 188.

**14. In closed-chain exercises, all of the following events occur; EXCEPT:**

- a. Muscle activation occurs in multiple muscle groups.
- b. Resistance is applied simultaneously to multiple moving segments.
- c. Distal segment remains in contact.
- d. Movement of body segments only distal to the moving joint.

Explanation

Closed-chain exercises involve motions in which the body is moved over relatively fixed or stabilized distal segments. Interdependent joint movements take place in predictable movement patterns. Examples are upper extremity weight bearing exercises and push up.

**Ans.**

- 13. d
- 14. d

Reference: Kisner, Colby, Borstad. *Therapeutic Exercise: Foundations and Techniques*, 6th edition. Philadelphia: F.A. Davis Company; 2012. p. 188.

58. In sitting position, while doing knee extension of the right leg, if left leg is opposing the extension of the right leg, then the exercise is called _____.

- a. Auto resisted exercise
- b. Assisted exercise
- c. Resisted assisted exercise
- d. Auto assisted exercise

Explanation

Resistance is given by the patient himself/herself; so, it becomes auto resisted exercise.



Reference: Dena Gardiner. *The Principles of Exercise Therapy*, 4th Revised Coloured Enlarged Edition. CBS Publishers & Distributors Pvt. Ltd.; 2023. p. 218.

59. The following statements are true about Bad Ragaz technique; EXCEPT:

- a. This uses functional movement patterns
- b. Uses buoyancy for floatation
- c. Therapist is moving continuously in water to give exercises to the stable patient
- d. The whole body is immersed to the level of neck into the water

Ans.

- 58. a
- 59. c

Explanation

Generally, Bad Ragaz technique involves using buoyancy for floatation with the therapist as a fixed point and moving the patient to achieve the selected oblique pattern of movement.

110. Which of the following is absolute contraindication for exercise during pregnancy:

- a. Underweight women
- b. Severe anemia
- c. Pre-eclampsia
- d. Obesity

Explanation

Pre-eclampsia is a serious condition that develops during pregnancy. People with pre-eclampsia often have high blood pressure (hypertension) and high levels of protein in their urine (proteinuria). Pre-eclampsia typically develops after the 20th week of pregnancy. It can also affect other organs in the body and be dangerous for both the mother and her developing fetus. Because of these risks factors, exercise is an absolute contraindication in pre-eclampsia and it needs to be treated by a health care provider.

Reference: Pescatello LS, Arena R, Riebe D, Thompson PD. *ACSM's Guidelines for Exercise Testing*, 9th edition. Wolters Kluwer/Lippincott Williams & Wilkins; 2014. p. 195.

111. Rhythmic repetitive exercises involving large muscle groups are

- a. Anaerobic exercises
- b. Aerobic exercise
- c. Revolutionary exercises
- d. Reliable exercises

Explanation

Aerobic exercise refers to the type of repetitive, structured physical activity that requires the body's metabolic system to use oxygen to produce energy.

5 Easy aerobic exercises

You can do at home



Jump rope



Running



Rowing



Swimming



Cycling

Ans.

110. c

111. b

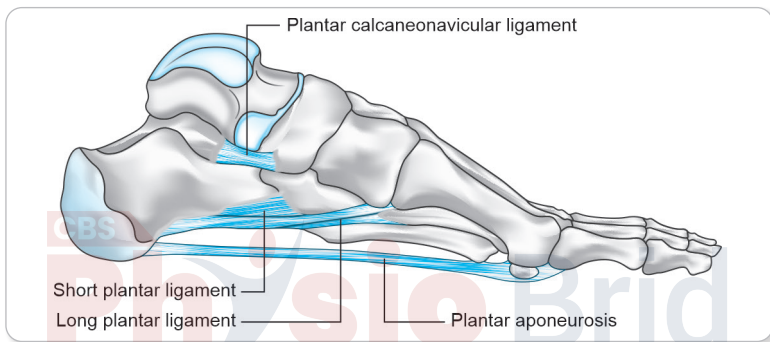
Reference: Kisner, Colby, Borstad. *Therapeutic Exercise: Foundations and Techniques*, 5th edition. Philadelphia: F.A. Davis Company; 2007. p. 240.

55. The plantar calcaneonavicular ligament is most commonly referred to as the _____ ligament.

- a. Bifurcate
- b. Deltoid
- c. Cervical
- d. Spring

Explanation

In the ankle joint the inferior aspect of the joint capsule is formed by the plantar calcaneonavicular ligament (spring ligament) that spans the gap between the calcaneus and navicular immediately below the talar head. The capsule is reinforced medially by the deltoid and laterally by the bifurcate ligaments.



Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 5th edition. Philadelphia: F.A. Davis Company; 2011. p. 455.

56. In left thoracic rotation _____ muscles are recruited.

- a. Left internal intercostal + Right external intercostal
- b. Right internal intercostal + Left external intercostal
- c. Left internal intercostal + Left external intercostal
- d. Right internal intercostal + Right external intercostal

Explanation

The major role of the lateral intercostal muscles is in axial rotation of the thorax, with ipsilateral internal intercostal and contralateral external intercostal muscles working synergistically to produce trunk rotation (e.g., left internal and right external intercostal muscles are active during trunk rotation to the left).

Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 5th edition. Philadelphia: F.A. Davis Company; 2011. p. 203.

57. _____ muscle supports both longitudinal and transverse arches.

- a. Tibialis anterior
- b. FHL
- c. FDL
- d. Peroneus longus

Ans.

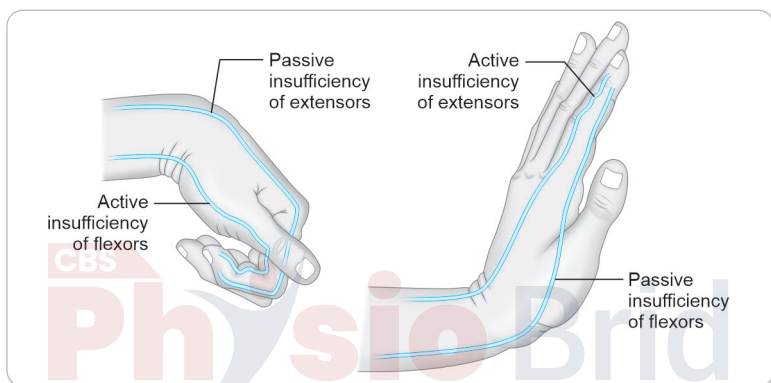
- 55. d
- 56. a
- 57. d

66. Inability of the muscle to produce isometric tension or contraction at two joints simultaneously is called _____.

- | | |
|------------------------------|-------------------------|
| a. Passive insufficiency | b. Active insufficiency |
| c. Contractile insufficiency | d. Stress insufficiency |

Explanation

A decrease in the torque produced by the muscle may be encountered when the full ROM is attempted simultaneously at all joints crossed by a multi joint muscle. This decrease in torque is often referred to as “active insufficiency”.



Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 5th edition. Philadelphia: F.A. Davis Company; 2011. p. 121.

67. Resistance to muscle is increased by the following methods; EXCEPT:

- | | |
|----------------------------------|----------------------|
| a. Increase poundage | b. Increase leverage |
| c. Decrease duration of exercise | d. Speed alteration |

Explanation

Increase in weight, increase in leverage, and alteration in speed and increase in duration of exercise will increase resistance to muscle action.

Reference: Dena Gardiner. *The Principles of Exercise Therapy*, 4th Revised Coloured Enlarged Edition. CBS Publishers & Distributors Pvt. Ltd.; 2023. p. 75.

68. _____ muscles help in both inspiration and expiration.

- | | |
|---------------------|---------------|
| a. Pectoralis minor | b. Subclavius |
| c. Abdominal | d. Quadratus |

Explanation

The major function of the abdominal muscles with regard to ventilation is to assist with forced expiration. The muscle fibers pull the ribs and costal cartilage

Ans.

66. b
67. c
68. c

83. All of the following are the external forces that are manipulated to maximize torque production; EXCEPT:

- Increasing the magnitude of the applied force.
- Applying the force perpendicularly.
- Decreasing the distance of the point of application of the force from the joint axis.
- Increasing the distance of the point of application of the force from the joint axis.

Explanation

External forces are manipulated to maximize torque production. The torque of an external force can be increased by increasing the magnitude of the applied force, by applying the force perpendicularly to (or closer to) the lever, also by increasing the distance of the point of application of the force from the joint axis.

Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 6th edition. Philadelphia: F.A. Davis Company; 2019. p. 56.

84. Circumduction of the thumb is also termed _____.

- Flexion
- Abduction
- Rotation
- Opposition

Explanation

The circumduction motion of the thumb is commonly termed **opposition**. Opposition permits the tip of the thumb to oppose the tips of the fingers. It is the unique range and direction of motion at the first carpometacarpal joint that produces opposition of the thumb. Opposition is sequential abduction, flexion, and adduction of the first metacarpal, with simultaneous rotation.

The functional significance of the carpometacarpal joint of the thumb and of the movement of opposition, can be appreciated when one realizes that use of the thumb against a finger occurs in almost all forms of **prehension** (grasp and dexterity activities).



Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 6th edition. Philadelphia: F.A. Davis Company; 2019. p. 339.

85. _____ and _____ ligaments are the key stabilizers of the carpometacarpal joint.

- Dorsoradial, anterior oblique
- Intersesamoid, anterior oblique
- Dorsoradial, intersesamoid
- Dorsoradial, posterior oblique

Ans.

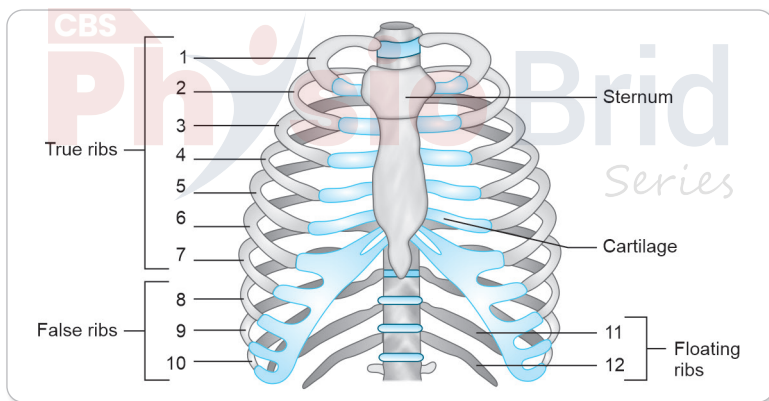
83. c
84. d
85. a

4. Ribs 1–7, 8–10 and 11–12 are respectively called _____.

- Vertebrosteral/true ribs, vertebrochondral/false ribs, vertebral/floating ribs
- Verterbal/true ribs, vertebrosteral/false ribs, vertebrochondral/ floating ribs
- Vertebrochondral/true ribs, vertebrosteral/floating ribs, vertebral/false ribs
- Vertebral/floating ribs, vertebrosteral/false ribs, vertebrochondral/true ribs

Explanation

Ribs 1–7 are classified as vertebrosteral or true ribs because each rib, through its costal-cartilage, attaches directly to the sternum. The costal-cartilage of rib 8 through 10 articulates with the costal-cartilage of the superior rib, indirectly articulating with the sternum via rib 7. Hence, they are vertebrochondral or false ribs. The 11th and 12th ribs are vertebral or floating ribs because they do not have any anterior attachment to the sternum.



Ans.

- a
- b

Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 5th edition. Philadelphia: F.A. Davis Company; 2011. p. 194.

5. Mandibular depression or mouth opening is considered within normal limits if the proximal interphalangeal joints of _____ fingers can be inserted between the teeth.

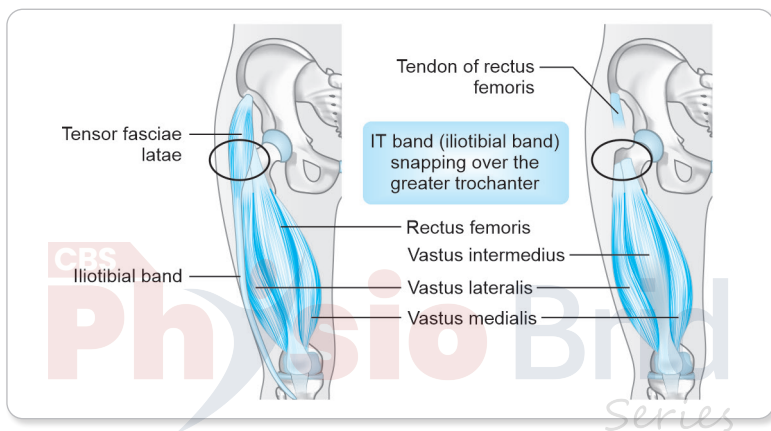
- 4
- 3
- 2
- 1

20. Snapping hip syndrome is because of the muscle _____.

- a. Sartorius
- b. Piriformis
- c. Gluteus medius
- d. Iliotibial band

Explanation

Snapping hip syndrome (SHS), also known as Coxa Saltans, is a condition that is characterized by a snapping sensation, and/or audible “snap” or “click” noise, in or around the hip when it is in motion. Iliotibial band snapping over the greater trochanter of the femur leads to this.



Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 4th edition. Philadelphia: F.A. Davis Company; 2005. p. 376.

21. Pistol grip deformity of the femoral neck is called _____.

- a. Femoroacetabular impingement
- b. Cam impingement
- c. Pincer impingement
- d. Coxa impingement

Ans.

- 20. d
- 21. b

Explanation

Cam impingement is thought to originate from what is described as a pistol grip deformity of the femoral neck.

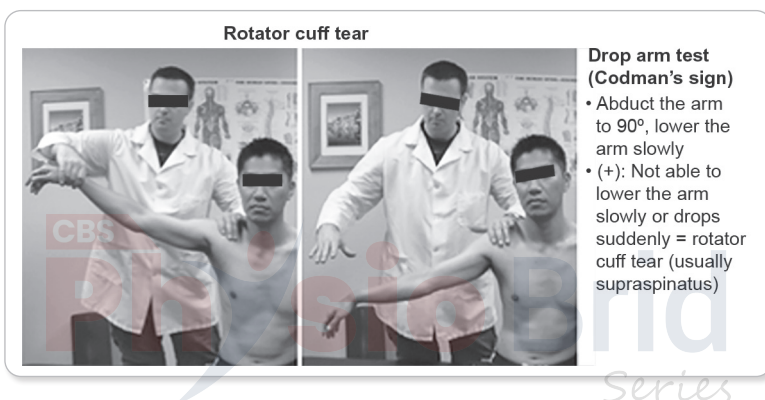
Reference: Levangie, Norkin, Lewek. *Joint Structure & Function: A Comprehensive Analysis*, 5th edition. Philadelphia: F.A. Davis Company; 2011. p. 385.

54. Drop arm test is also known as _____.

- a. Empty can test
- b. Jobe test
- c. Straight arm test
- d. Codman's test

Explanation

Drop arm test is also known as Codman's test. In this test, the examiner abducts the patient's shoulder to 90° and then asks the patient to slowly lower the arm to the side in the same arc of movement. A positive test is indicated if the patient is unable to return the arm to the side slowly or has severe pain when attempting to do so. A positive test indicates a tear in the rotator cuff complex.



Reference: Magee DJ. *Orthopaedic Physical Assessment*, 6th edition. Elsevier; 2014. p. 332.

55. The inability to squeeze the little finger to the remainder of the hand in Wartenberg's sign indicates _____.

- a. Radial neuropathy
- b. Ulnar neuropathy
- c. Median nerve pathology
- d. Anterior interosseous nerve pathology

Ans.

54. d

55. b

Explanation

In Wartenberg's test, the patient sits with hands resting on the table and the examiner passively spreads the fingers apart and asks the patient to bring them together again. Inability to squeeze the little finger to the remainder of the hand indicates positive test for ulnar neuropathy.

References:

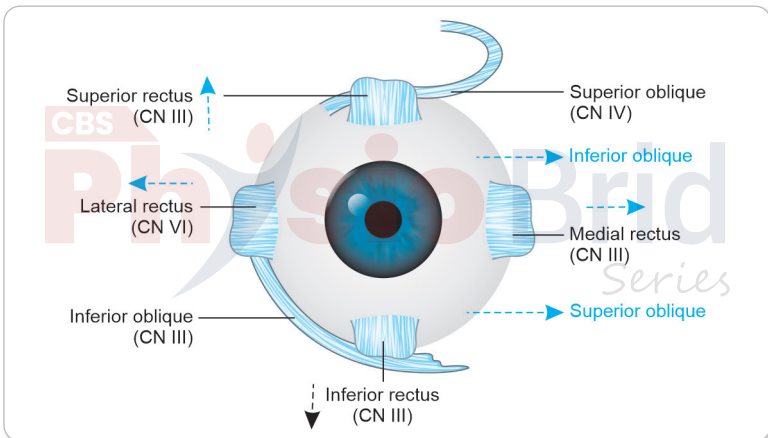
1. O'Sullivan SB, Schmitz TJ, Fulk GD. *Physical Rehabilitation*, 6th edition. F.A. Davis Company; 2013. p. 178-179.
2. Mehta SP, Joshi SR, Mehta NP. *PJ Mehta's Practical Medicine*, 20th edition. The National Book Depot; 2017. p. 298.

7. All are supplied by third cranial nerve; EXCEPT:

- | | |
|--------------------|--------------------|
| a. Superior rectus | b. Inferior rectus |
| c. Medial rectus | d. Lateral rectus |

Explanation

Lateral rectus muscle is supplied by the VI cranial nerve. Rest all muscles are supplied by the III cranial nerve.

**References:**

1. Mehta SP, Joshi SR, Mehta NP. *PJ Mehta's Practical Medicine*, 20th edition. The National Book Depot; 2017. p. 309.
2. O'Sullivan SB, Schmitz TJ, Fulk GD. *Physical Rehabilitation*, 6th edition. F.A. Davis Company; 2013. p. 178-179.

Ans.

7. d
8. b

8. Ptosis is caused by _____ nerve.

- | | |
|--------------|---------------|
| a. Optic | b. Oculomotor |
| c. Trochlear | d. Abducens |

Explanation

In infranuclear paralysis, there is paralysis of medial, superior, inferior recti, inferior oblique, levator palpebrae superioris and ciliary muscles resulting in diplopia, squint and ptosis, due to oculomotor nerve involvement.

Explanation

In Parkinsonism, the subthalamic nucleus (STN) becomes overactive and acts as a brake on the globus pallidus interna (GPi), causing shutdown of motion and rigidity. When the GPi is overstimulated, it has an over-inhibitory effect on the thalamus, which in turn decreases thalamus output and causes tremor.

Reference: O’Sullivan SB, Schmitz TJ, Fulk GD. *Physical Rehabilitation*, 6th edition. F.A. Davis Company; 2013. p. 809-810.

58. In comparison to PD, which is not a characteristic feature of atypical Parkinsonism?

- a. Late involvement of speech and gait
- b. Absence of resting tremor
- c. Less aggressive clinical course
- d. Presence of motor asymmetry

Explanation

In comparison to PD, the atypical Parkinsonism is characterized by early involvement of speech and gait, absence or resting tremor, lack of motor asymmetry poor or no response to levodopa and more aggressive clinical course.

Parkinsonism versus Parkinson’s Disease

Parkinsonism is a syndrome characterized by a combination of Bradykinesia, stiffness, and tremors	Parkinson’s disease is a clinical syndrome characterized by lesions in the basal ganglia
Comparatively rapidly progressive condition with additional features like hallucinations, delusions, and dementia	Major clinical features include resting tremors, rigidity, stiffness, Akinesia and dysfunctional postural reflexes, etc.
More than 80% of the identified cases are due to Parkinson’s disease. Secondary causes include vascular conditions, drugs, infections, etc.	Root cause is multifactorial such as heredity, positive family history, advanced age, and environmental toxins
Take a longer duration to respond or do not respond at all to the treatment with levodopa	May respond faster since it is less progressive

Ans.

- 58. c
- 59. c

Reference: Loscalzo J, Fauci AS, Kasper DL, Hauser S, Longo D, Jameson L. *Harrison’s Principles of Internal Medicine; Volume 1*, 21st edition. McGraw Hill Education; 2022. p. 3122.

59. Which of the following is not included as a cardinal feature of Parkinson’s disease?

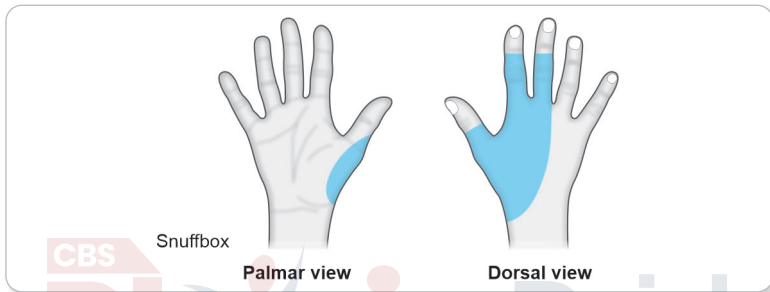
- a. Resting tremor
- b. Rigidity
- c. Dementia
- d. Postural instability

89. The constant sensory distribution of the radial nerve is _____.

- a. On the dorsum of the thumb near the apex of anatomical snuffbox
- b. Tip of the index finger
- c. Tip of the little finger
- d. On the dorsum of the little finger

Explanation

The radial nerve (C5, C8 and T1) supplies on the dorsum of the hand radial three and half fingers.



Reference: Magee DJ. *Orthopaedic Physical Assessment*, 6th edition. Elsevier; 2014. p. 480.

90. If the loss of sensation is primarily observed over on the ulnar side of the forearm and hand, then the dermatome involved is _____.

- a. C3, C4
- b. C5, C6
- c. C6, C7
- d. C8, T1

Explanation

Ulnar nerve C8, T1 supplies to little finger and half of ring finger, palm is spared.

Reference: Magee DJ. *Orthopaedic Physical Assessment*, 6th edition. Elsevier; 2014. p. 480.

Ans.

- 89. a
- 90. d
- 91. a

91. Nerve supply to deltoid muscle is _____ nerve.

- a. Axillary
- b. Radial
- c. Median
- d. Thoracodorsal

Explanation

Deltoid muscle is supplied by axillary nerve, with C5 root value, muscle action is abduction of arm.

Reference: Magee DJ. *Orthopaedic Physical Assessment*, 6th edition. Elsevier; 2014. p. 163.

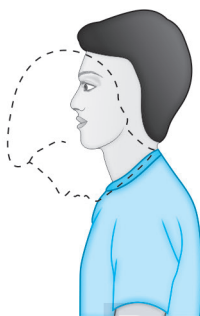
120. All of the following are true about Lhermitte's sign of multiple sclerosis; EXCEPT:

- An electric shock-like sensation
- Induced by flexion or other movements of the neck
- It is generally self-limited
- Commonly radiates into the arms

Explanation

Lhermitte's sign

- Flexion of the neck may induce a tingling, electric shock like feeling down the shoulders and back
- Frequent occurrence of this phenomenon in MS
- Due to an increased sensitivity of demyelinated axons to the stretch or pressure on the spinal cord induced by neck flexion



Reference: Golwalla AF, Golwalla SA. *Golwalla's Medicine for Students: A Reference Book for The Family Physician*, 25th edition. Jaypee Brothers Medical Publishers; 2017, p. 557.

121. A patient is on anti-AChE medication and needs to be evaluated by repetitive nerve stimulation. What is true about the test?

- Medication should be stopped 6–12 days before testing.
- Medication should be stopped 6–12 hours before testing.
- Medication should be taken in regular dose before testing.
- Medication should be taken double dose before testing.

Explanation

Repetitive nerve stimulation may provide helpful diagnostic evidence of myasthenia gravis. Anti-AChE should be stopped 6-12 hours before testing.

Reference: Loscalzo J, Fauci AS, Kasper DL, Hauser S, Longo D, Jameson L. *Harrison's Principles of Internal Medicine; Volume 1*, 21st edition. McGraw Hill Education; 2022. p. 3234.

122. _____ is the neuromuscular junction disorder.

- | | |
|---------|--------|
| a. MND | b. GBS |
| c. SARD | d. MG |

Ans.

120. d
121. b
122. d

139. _____ is monosynaptic, Hoffmann reflex.

- a. F wave
- b. H reflex
- c. Blink reflex
- d. M wave

Explanation

H reflex is monosynaptic, Hoffmann reflex. This electrically elicited spinal monosynaptic reflex by the mechanically tap to the Achilles tendon or electrical stimulation is tibial nerve.

Reference: Kimura J. *Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice*, 3rd edition. Oxford University Press; 2001. p. 28.

140. _____ is late response, elicited with supramaximal stimulation.

- a. F wave
- b. H reflex
- c. M wave
- d. Axon reflex

Explanation

F wave is a late response, elicited with supramaximal stimulation. The F wave first travels in the centripetal direction toward the spinal cord before it turns around distally to activate the muscle. F wave amplitude serve as a measure of motor excitability.

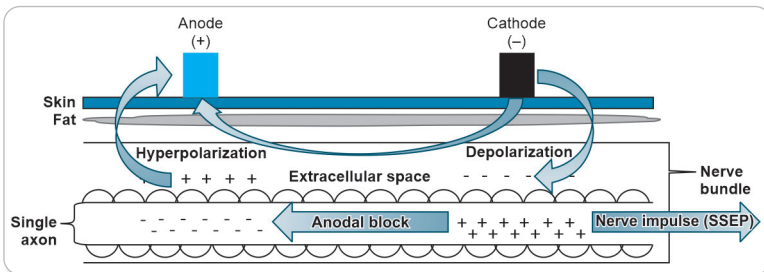
Reference: Kimura J. *Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice*, 3rd edition. Oxford University Press; 2001. p. 446-447.

141. In stimulating electrodes, the nerve is hyperpolarized under cathode

- a. Yes
- b. No

Explanation

An externally applied current for nerve stimulation will depolarize the nerve under cathode as the nerve is positive outside.



Reference: Kimura J. *Electrodiagnosis in Diseases of Nerve and Muscle: Principles and Practice*, 3rd edition. Oxford University Press; 2001. p. 30.

Ans.

- 139. b
- 140. a
- 141. b

9. Grade III dyspnea on mMRC scale corresponds to _____.

- Shortness of breath when hurrying on the level or walking up a slight hill
- Walking slower than person of same age on level
- Feeling too breathless to leave house
- Stopping for breathing after walking 100 yards

Explanation

Modified Medical Research Council Dyspnea scale is a modified version of previously used Medical Research Council dyspnea scale (MRC dyspnea scale). The modified version of scale grades dyspnea with strenuous activities and thus a normal person can also be graded on it.

Grade	Dyspnea related to activity
0	Breathlessness only on strenuous exercise
1	Breathlessness when hurrying on the level or walking up a slight hill
2	Walks slower than other people of same age on the level due to shortness of breath or need to stop for breathing when walking at own pace
3	Shortness of breath after walking few minutes on the level or about 100 yards (90 m)
4	Too breathless to leave the house, or breathless when dressing or undressing

Modified from The Medical Research Council Dyspnea scale

Reference: Grippi MA, Elias JA, Fishman JA, Kotloff RM, Pack AI, Senior RM. *Fishman's Pulmonary Diseases and Disorders*, 5th edition. McGraw Hill Education; 2015. p. 652.

10. All of the following statements about huffing are true; EXCEPT _____.

- It does not increase the intra-abdominal pressure
- Glottis remains open while performing huffing
- It is contraindicated in lower section cesarean section patients
- It is safer over coughing for patients who have undergone abdominal surgery

Explanation

Huffing is always preferred over coughing in patients where increased abdominal pressure can be a potential danger. As glottis remains open, it prevents rise in intra-abdominal pressure.

Ans.

- d
- c


18. Which of the following is the correct ratio of chest compression to mouth breathing while giving CPR?

- a. 30:5
b. 25:15
c. 30:2
d. 30:10


Explanation

ATS recommends use of 30 chest compressions to 2 ventilation/mouth breathing maneuvers while performing CPR.


CPR: Step by step




1 Call 911 or ask someone else to




2 Lay the person on their back and open their airways




3 If they are not breathing, start CPR



4 30 chest compressions



5 Two rescue breaths



6 Repeat until an ambulance or AED arrives

Reference: American Heart Association: Guidelines for CPR and ECC; 2020 Available URL: https://cpr.heart.org/-/media/cpr-files/cpr-guidelines-files/highlights/hghlghts_2020_ecc_guidelines_english.pdf

Ans.

18. c
19. b

19. Which of the following drugs is used to reverse the action of heparin?

- a. Cyclandelate
b. Protamine Sulphate
c. Warfarin
d. Dipyridamole

Explanation

Protamine Sulphate is a strongly basic, low molecular weight protein that neutralizes the action of heparin. It helps stop the heparin-induced bleeding when given IV.

Reference: KD Tripathi. *Essentials of Medical Pharmacology*, 8th edition. Jaypee Brothers Medical Publishers; 2018. p. 666.

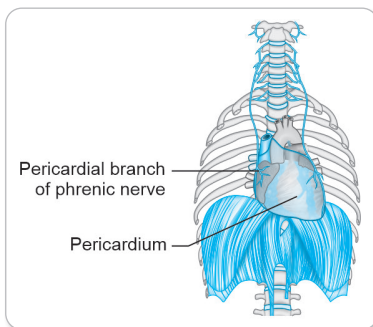
29. Diaphragm is innervated by _____.

- a. Axillary nerve
- b. Musculocutaneous nerve
- c. Phrenic nerve
- d. Superior laryngeal nerve

Explanation

Each half of diaphragm muscle is innervated by ventral rami of phrenic nerve on that side. Root value of phrenic nerve is C_3, C_4, C_5 .

Reference: BD Chaurasia. *Human Anatomy Regional and Applied: Upper Limb and Thorax*, 8th edition. CBS Publishers and Distributors; 2020. p. 390.

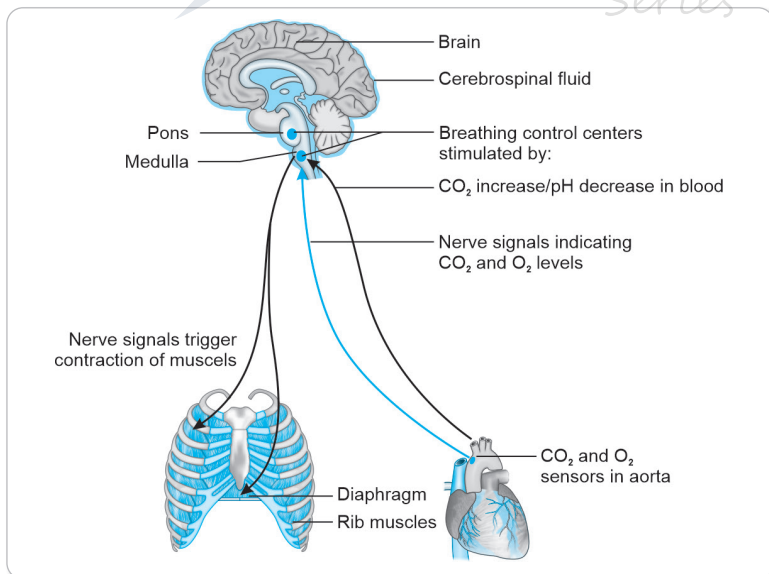


30. Higher center for breathing is located in _____.

- a. Cerebellum
- b. Pons and medulla
- c. Cerebral cortex
- d. Brain stem

Explanation

Higher center for breathing is located in pons and medulla. Neurons located in the medial side of medulla are responsible for activating diaphragm and intercostal muscles. Inhibitory neurons of expiration are also located in medulla.



Ans.

- 29. c
- 30. b

Reference: McArdle WD, Katch FI and Katch VL. *Exercise Physiology: Nutrition, Energy and Human Performance*, 8th edition. Wolters Kulwer/Lippincott Williams & Wilkins; 2014. p. 286.

Reference: Hillegas E. *Essentials of Cardiopulmonary Physical Therapy*, 3rd edition. Elsevier; 2010. p. 382.

108. Mrs B is a known case of diabetes and was brought to the hospital due to vomiting and a decreased level of consciousness. She appears to be dehydrated and has a two-week history of polydipsia, polyuria, and weight loss. Measurement of arterial blood gas shows pH 7.0, PaO₂ 88 mm Hg, PaCO₂ 25 mm Hg, and HCO₃ 12 mmol/L. What inference will you draw?

- Uncompensated respiratory acidosis
- Partially compensated respiratory acidosis
- Metabolic alkalosis
- Partially compensated metabolic acidosis

Explanation

Mrs B is a known case of diabetes mellitus. The report shows metabolic acidosis (low HCO₃ and pH) with respiratory compensation (low CO₂).

	Abnormality	pH	CO ₂	HCO ₃	Examples
Respiratory acidosis	Uncompensated	↓	↑	→	Severe asthma
	Partially compensated	↓	↑	↑	Pneumonia
	Fully compensated	→	↑	↑	Hypoventilation
Respiratory alkalosis	Uncompensated	↑	↓	→	Hyperventilation
	Partially compensated	↑	↓	↓	Panic attack
	Fully compensated	→	↓	↓	Aspirin poisoning
Metabolic acidosis	Uncompensated	↓	→	↓	Diabetic ketoacidosis
	Partially compensated	↓	↓	↓	Lactic acidosis
	Fully compensated	→	↓	↓	Alcohol, salicylate
Metabolic alkalosis	Uncompensated	↑	→	↑	Loss of acid: severe
	Partially compensated	↑	↑	↑	Vomiting
	Fully compensated	→	↑	↑	Loss of potassium

Reference: Hillegas E. *Essentials of Cardiopulmonary Physical Therapy*, 3rd edition. Elsevier; 2010. p. 382.

109. ST-segment elevation in ECG depicts:

- Myocardial Ischemia
- Myocardial Infarction
- Myocarditis
- Myositis

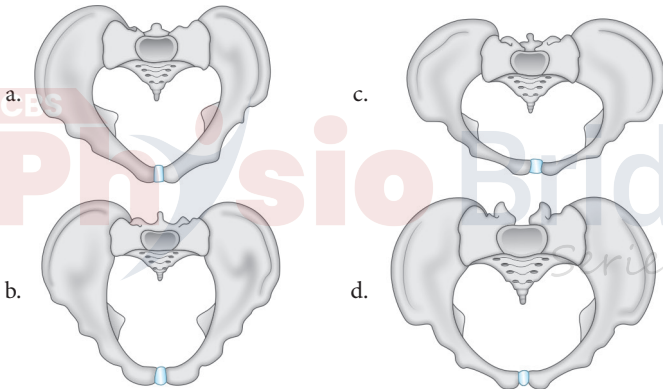
Ans.

108. d
109. b

Physiotherapy in Obstetrics and Gynecology

Manisha A Rath, Shubhangi Patil, Nigar Nisar Shikalgar

1. Identify the gynecoid pelvis in the following images:



Explanation

The ideal or gynecoid pelvis is recognized by its well-rounded oval inlet and similarly uncluttered outlet.

Reference: Mantle J, Haslam J, Barton S. *Physiotherapy in Obstetrics and Gynaecology*, 2nd edition. Elsevier; 2004. p. 1-3.

2. During pregnancy, lumbar lordosis is seen due to the tilting of _____.

- a. Pelvis
- b. Sacrum
- c. Both pelvis and sacrum
- d. Increased abdominal girth

Explanation

The sacrum supports the weight of the trunk and upper limbs; usually loading of it pushes the sacral prominence down and forward, producing a complex and

Ans.

- 1. d
- 2. b

38. After major gynecological surgery, light household activity can be recommended after _____.

- a. 4–5 weeks
- b. 3–4 weeks
- c. 2–3 weeks
- d. 1–2 weeks

Explanation

As soft tissues require 4–6 weeks for healing, therefore, only light activity is allowed during 1–2 weeks, for better healing after major gynecological surgery.

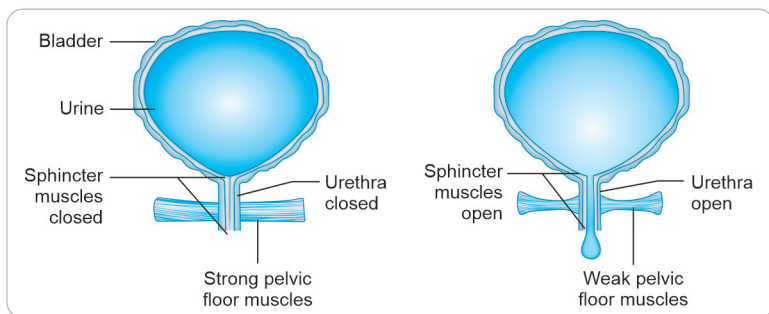
Reference: Mantle J, Haslam J, Barton S. *Physiotherapy in Obstetrics and Gynaecology*, 2nd edition. Elsevier; 2004. p. 329.

39. The causes of stress urinary incontinence are all; EXCEPT:

- a. Weakness of pelvic floor muscle
- b. Hypersensitivity of the detrusor muscle
- c. Multiple deliveries
- d. Menopause

Explanation

The causes of stress urinary incontinence are weakness of pelvic floor muscles, multiple deliveries and menopause. Pelvic floor muscles become weak because of multiple deliveries and after menopause. The muscles of the pelvic floor create a hammock that holds the bladder and bowel in place. As the pelvic floor muscles weaken or become damaged, the sphincter loses the ability to completely keep the urethra closed during stressful activities like coughing, laughing, sneezing, etc. and urine leaks out. Hypersensitivity of the detrusor muscle causes urge urinary incontinence.



Ans.

- 38. d
- 39. b

Reference: Konar H. *DC Dutta's Textbook of Gynecology*, 8th edition. Jaypee Brothers Medical Publishers; 2020. p. 382–383.

10. In the elderly, when auditory processing is decreased, then the medium of the instructions should be in _____.

- a. Physical activity
- b. Mental activity
- c. Health education
- d. Written instructions

Explanation

When the patient is unable to hear then the only way of communication is by writing.

Reference: Guccione AA, Wong RA, Avers D. *Geriatric Physical Therapy*, 3rd edition. Elsevier; 2011. p. 110-111.

11. _____ is a multi-task test of 14 balance tasks (6 static & 8 dynamic) to check the balance and risk of fall.

- a. Berg balance scale
- b. Timed up and go test
- c. Tinetti performance oriented assessment of mobility
- d. Dual-task tests

Explanation

Dual-task testing challenges attentional capacities by the simultaneous performance of two tasks. Time up and go test assesses mobility, Berg balance test assesses static and dynamic balance, and Tinetti performance oriented-assessment of mobility assesses balance and gait.

Reference: Guccione AA, Wong RA, Avers D. *Geriatric Physical Therapy*, 3rd edition. Elsevier; 2011. p. 346.

12. Primary osteoporosis is seen in _____.

- a. Postmenopausal women
- b. Bone marrow cellularity disorder
- c. Inflammatory disorder
- d. Corticosteroid use

Explanation

Primary osteoporosis is seen in postmenopausal women, all other options are the secondary causes.

Reference: Mantle J, Haslam J, Barton S. *Physiotherapy in Obstetrics and Gynaecology*, 2nd edition. Elsevier; 2004. p. 256.

13. Gait change seen in geriatric is _____.

- a. Increased steps
- b. Increased arm swing
- c. Increased double support
- d. Narrow stride

Ans.

- 10. d
- 11. a
- 12. a
- 13. c

14. Dennis brown splint is used in _____.

- a. Hip dislocation
- b. CTEV
- c. Equinus foot
- d. Pes planus

Explanation

For hip dislocation, pelvic harness is used, for pes planus arch support is used and for equinus foot heel support is used.

Reference: Sunder S. *Textbook of Rehabilitation*, 3rd edition. Jaypee Brothers Medical Publishers; 2010. p. 310.

15. The Milwaukee brace is given for growing children with _____.

- a. Static scoliosis
- b. Scoliosis $>40^\circ$ Cobb's angle
- c. Static scoliosis $<40^\circ$ Cobb's angle
- d. Dynamic scoliosis

Explanation

The Milwaukee brace is given for growing children with dynamic scoliosis. Other kinds of scoliosis need surgical interventions.

References:

1. O'Sullivan SB, Schmitz TJ, Fulk GD. *Physical Rehabilitation*, 7th edition. F.A. Davis Company; 2019. p. 1346.
2. Sunder S. *Textbook of Rehabilitation*, 3rd edition. Jaypee Brothers Medical Publishers; 2010. p. 147.

16. _____ is indication for airplane splint.

- a. Fracture of neck of humerus
- b. Infraspinatus tendon rupture
- c. Erb's palsy
- d. Paralysis of trapezius muscle

Ans.

- 14. b
- 15. d
- 16. c
- 17. c

Explanation

The airplane splint is used in Erb's palsy. For other options you need arm sling.

Reference: Sunder S. *Textbook of Rehabilitation*, 3rd edition. Jaypee Brothers Medical Publishers; 2010. p. 150.

17. In a patient having radial nerve palsy, _____ will be preferred.

- a. Resting hand splint
- b. Knuckle bender splint
- c. Cock-up splint
- d. Dorsal long opponens splint

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