

***Michlovitzs Modalities for Therapeutic Intervention
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Chapter 2: Cold Therapy

Multiple Choice

1. Which of the following variables is least likely to affect whether the application of a cold pack is effective in decreasing tissue temperature?

- A. Time of exposure
- B. Activity level of the patient
- C. Ambient air temperature
- D. Body surface area covered by the cold pack

ANS: C

2. When determining the time of exposure necessary to reach the desired effects of cold application, which of the following is not an important factor to consider?

- A. The amount of nervous tissue in the treatment area
- B. Increased adipose tissue in the treatment area
- C. A large scar in the treatment area
- D. Joint replacement in the treatment area

ANS: A

3. By what mechanism of action is heat transferred when placing an ice pack on an injured knee?

- A. Convection
- B. Evaporation
- C. Conduction
- D. Electric Current

ANS: C

4. Which one of the following medical conditions is a contraindication for cold therapy?

- A. Hypotension
- B. Peripheral vascular disease
- C. Osteoarthritis
- D. Acute inflammation

ANS: B

5. During a cold pack treatment, your patient reports burning and tingling sensations. You perform a skin check and notice pallor and cyanosis in the distal extremity exposed to the cold pack. Which of the following problems is most likely?

- A. Reflex vasodilation
- B. Cold urticaria
- C. Cryoglobulinemia
- D. Raynaud's phenomenon

ANS: D

6. Which of the following is a benefit of applying cold therapy immediately following an acute trauma?

- A. Increased oxygen demand
- B. Arterial vasodilation
- C. Lowered metabolism
- D. Diminished pain threshold

ANS: C

7. Which of the following is true regarding the use of cold therapy on spasticity?

- A. Applying cold therapy to a spastic muscle has no effect on the spasticity.
- B. All individuals with neurological conditions report improvement in symptoms when they become cold.
- C. With the application of cold therapy, the presence of spasticity may be temporarily reduced allowing increased functional ability of the affected limb.
- D. Cold application results in an increase in gamma-motoneuron firing within the spastic muscle.

ANS: C

8. Which of the following is true regarding muscle strength assessment after applying cold therapy to a patient?

- A. After cold application of less than 5 minutes, a muscle may produce less force than in its noncooled state.
- B. Muscle strength is not influenced by cold application.
- C. After a longer duration cold application, a muscle may be able to produce more force than its noncooled state.
- D. Muscle strength assessment should not be performed immediately following cold application as it may lead to inaccurate findings.

ANS: D

9. Which of the following statements is true regarding vapocoolant sprays?

- A. They are effective in decreasing pain and edema following acute trauma.
- B. They can be used for temporary pain relief prior to stretching muscles with local spasm.
- C. There is a large body of strong evidence to support the effectivity.
- D. They transfer heat from the body via convection.

ANS: B

10. What is the benefit of the addition of compression to cold therapy?

- A. Increases rate of cooling and external pressure to reduce edema
- B. Decreases capillary hydrostatic pressure to limit edema formation
- C. Limits irritation of inflamed tissues
- D. Prevents further injury to inflamed tissues

ANS: A

11. Which of the following responses to the application of a cold pack would require the therapist to immediately discontinue the treatment?

- A. Reddening of the skin
- B. Raised, red, irregularly shaped areas on the skin
- C. Numbness of the skin after prolonged application
- D. Feelings of burning followed by aching of the skin

ANS: B

12. Which of the following is true regarding cold therapy application methods?

- A. A bag of frozen peas can be used for home cold pack application.
- B. Recommendations for temperature and duration of water baths are inversely related.
- C. Ice massage should be conducted over larger treatment areas rather than smaller ones to be most effective.
- D. Menthol gels or creams decrease subcutaneous tissue temperature.

ANS: A

13. Which of the following cold therapy techniques has the greatest danger of causing nerve injury?

- A. Ice bag around the elbow for more than 1 hour
- B. Cold water bath for a sprained ankle for 15 minutes
- C. Vapocoolant spraying of the hamstrings at their origin
- D. Ice massage for 5 minutes over the lateral epicondyle

ANS: A

14. You are treating a 16-year-old female with a diagnosis of acute left knee sprain presenting to the clinic with pain and swelling in the knee. Which modality would be the best choice to treat these symptoms?

- A. Ice massage
- B. Controlled-cold compression unit
- C. Cold bath
- D. Vapocoolant spray

ANS: B

15. Which of the following cold therapy applications is most appropriate for the given scenario?

- A. Vapocoolant spray for limited knee flexion in patient who developed a DVT 3 days post total knee surgery
- B. Ice massage for right lateral epicondylitis in patient with history of cryoglobulinemia
- C. Controlled-cold compression unit for acute left ankle sprain in patient with medical history of diabetic neuropathy

D. Cold pack to cervical spine following whiplash injury in patient with leukemia

ANS: D