

Hydrotherapy

COMPLETION: In the space(s) provided, write the word(s) that correctly complete(s) each statement.

1. The use of heat and cold is a powerful therapeutic agent because the physiologic effects are (predictable).
2. The short application of cold is (stimulating), whereas prolonged application of cold (depresses) metabolic activity.
3. The local application of heat causes the blood vessels to (dilate) and circulation to (increase).
4. The application of heat causes the pulse rate to (increase) and the white blood cell count to (increase).
5. A generalized lowering of the body temperature is termed (hypothermia).
6. The external application of heat to the body is called (thermotherapy).

KEY CHOICES: The following is a list of reactions to hydrotherapy. Write the appropriate key letter for each of the following conditions in the spaces provided.

C = Cold application

H = Heat application

(C) 1. hypothermia

(H) 2. vasodilation

(C) 3. reduced circulation



- (C) 4. anesthetic effect
- (H) 5. increased circulation
- (H) 6. increased perspiration
- (C) 7. numbness
- (H) 8. increased white cell count
- (H) 9. local muscle relaxation
- (C, H) 10. analgesia
- (C) 11. depressed metabolic activity
- (C) 12. reduced nerve sensitivity
- (H) 13. hyperthermia
- (C) 14. decreased muscle spasticity
- (H) 15. leukocyte migration into the area

TRUE OR FALSE: If the following statements are true, write *true* in the space provided. If they are false, replace the italicized word with one that makes the statement true.

- (true) 1. When heat or cold is applied to the body, certain *physiologic* changes occur.
- (prolonged) 2. A *short* application of cold sedates metabolic activity.
- (infrared) 3. The warming effect of the sun is due to *ultraviolet* rays.
- (true) 4. The application of *cold* to a fresh soft-tissue injury reduces pain and swelling.

COMPLETION: In the space(s) provided, write the word(s) that correctly complete(s) each statement.

- 1. When a body part is submerged in water, it is called a(n) (immersion bath) .
- 2. The application of cold agents for therapeutic purposes is termed (cryotherapy) .
- 3. The application of water to the body for therapeutic purposes is known as (hydrotherapy) .



4. The changes produced by water that is above or below body temperature are considered to be (thermal) effects.
5. The upper temperature limit for water that is considered safe for an immersion bath is (104° F).
6. The normal temperature of the body is (98.6° F) or (37° C).
7. The body's normal skin surface temperature is approximately (92° F).
8. A bath in which only the hips and pelvis are submerged is called a (sitz bath).
9. The acronym for a series of sensations resulting from the therapeutic application of ice is (CBAN).
10. The alternating application of heat and cold for therapeutic purposes is called (contrast therapy).
11. When the surface of the body is in direct contact with water, heat is exchanged by the process of (conduction).

SHORT ANSWER: In the spaces provided, write short answers to the following questions.

1. List four variables that determine the nature and extent of the effects of heat or cold on the body.
 - a. (the temperature)
 - b. (the duration)
 - c. (the area of the body)
 - d. (the thermal conductivity of the body and the agent)
2. What are the three forms in which water is used for therapeutic purposes?
 - a. (liquid)
 - b. (solid or ice)
 - c. (vapor or steam)



3. Which properties of water make it a valuable therapeutic agent?

- a. *(It is readily available.)* _____
- b. *(It is inexpensive.)* _____
- c. *(It absorbs and conducts heat.)* _____
- d. *(It provides buoyancy.)* _____
- e. *(It is considered a universal solvent.)* _____

4. The three classifications of therapeutic effects of water on the body are

- a. *(thermal)* _____
- b. *(mechanical)* _____
- c. *(chemical)* _____

5. List five ways of applying moist heat.

- a. *(immersion baths)* _____
- b. *(moist heat packs)* _____
- c. *(steam baths)* _____
- d. *(sprays and showers)* _____
- e. *(wraps)* _____

6. The acronym PRICE stands for

- a. *(Protect)* _____
- b. *(Rest)* _____
- c. *(Ice)* _____
- d. *(Compression)* _____
- e. *(Elevation)* _____



7. List four economical methods of applying local cold therapy.
- (cold compresses)
 - (immersion baths)
 - (ice packs)
 - (ice massage)
8. List the four normal reactions to ice therapy in the order in which they occur.
- (cold)
 - (burning)
 - (pain or achiness)
 - (numbness or analgesia)
9. Baths can be classified according to the temperature of the water. What is the temperature range for the following baths?
- cool bath— (67) to (84) °F
 - tepid bath— (85) to (95) °F
 - warm bath— (95) to (100) °F
 - hot bath— (100) to (104) °F
 - steam bath— (105) to (125) °F
10. List the four ways that heat is transferred to the body.
- (Conduction)
 - (Convection)
 - (Radiation)
 - (Conversion)

11. To increase circulation to an injured area and promote healing, alternate applications of _____ (c)
a) vibration and friction c) heat and cold
b) feathering and kneading d) percussion and gliding
12. An economical alternative to commercial ice packs is a plastic bag containing a 2:1 mixture of crushed ice and _____ (b)
a) vinegar c) bleach
b) isopropyl alcohol d) antifreeze
13. Water is a valuable therapeutic agent for all of the following reasons EXCEPT (c)
a) it is inexpensive to use c) it requires special equipment
b) it is readily available d) it absorbs and conducts heat
14. Water temperatures that are above or below body temperature have this effect: (b)
a) mechanical c) chemical
b) thermal d) psychological
15. Sprays, whirlpools, and friction are examples of this effect: (a)
a) mechanical c) chemical
b) thermal d) psychosomatic
16. Drinking water is an example of this effect: (c)
a) mechanical c) chemical
b) thermal d) dietary
17. Cardiac conditions, diabetes, lung disease, and high or low blood pressure are examples of hydrotherapy _____ (a)
a) contraindications c) indications
b) complications d) benefits
18. The average temperature of the skin's surface is _____ (b)
a) 96° F c) 86° F
b) 92° F d) 94° F
19. Prolonged use of cold applications has this effect _____ (c)
a) stimulating c) depressing
b) energizing d) dizzying



convection

(Convection is the transfer of heat through the movement of the air.)

conversion

(Conversion is the converting of an energy source into heat as it passes through the body's tissue.)

cryotherapy

(Cryotherapy is the application of cold agents for therapeutic purposes.)

hydrocollator

(A hydrocollator is an appliance used to heat and store chemical gel moist heat packs.)

hydrotherapy

(Hydrotherapy is the application of water to the body in any of its three forms for therapeutic purposes.)

hyperthermia

(Hyperthermia is a higher-than-normal body temperature, usually produced by an external environment such as a sauna or body wrap.)

hypothermia

(Hypothermia is a lower-than-normal body temperature.)

ice massage

(Ice massage is a local application of cold achieved by massaging a cube of ice over a small area such as a bursa, tendon, or small muscle.)



ice packs

(Ice packs are used for the local application of ice on a specific body part.)

immersion baths

(An immersion bath involves submersion of the body or a body part in water.)

moist heat packs

(Moist heat packs are chemical gel packs that are heated in a water bath, wrapped in a terry cloth cover, and placed on the body.)

Radiation

(Radiation is the transfer of heat by way of rays contacting the body.)

sitz bath

(The sitz or hip bath is applied only to the hips and pelvic region of the body, which is kept immersed in hot, tepid, or cool water, or alternately hot and cool water.)

vasocoolant spray

(A vasocoolant spray is a chemical in a small pressurized container that when sprayed on the skin evaporates very quickly, causing rapid cooling of the skin.)
