

Mercyhealth Prehospital and Emergency Services Center  
June 2021 Submersion Injuries & Drowning

Name\_\_\_\_\_ Level\_\_\_\_\_ Agency\_\_\_\_\_

1. Aspiration of a hypotonic liquid can cause which of the following?
  - A. Drawing liquid from plasma
  - B. Alveolar atelectasis & instability
  - C. It does nothing
2. The term "thermoneutral" refers to what?
  - A. Water temperature at which heat loss equals heat production
  - B. Heat loss due to conduction
  - C. Water temperature that is neutral and safe for submersion
3. Submersion is defined as?
  - A. Airway is above the surface of the liquid
  - B. Simply that you are in the water
  - C. Airway is below the surface of the liquid
4. In a drowning situation, irreversible neurologic effects are common after how many minutes?
  - A. 1-2 minutes
  - B. 2-3 minutes
  - C. 4-5 minutes
5. In our Mercyhealth's EMS guidelines for submersion, what is the first bullet point?
  - A. Routine C-spine stabilization for all submersion patients
  - B. Rescuer safety is #1
  - C. Consider endotracheal intubation
6. T/F In cold water immersion, cardiac arrhythmias are more likely to develop in patients with pre-existing cardiac conditions?
7. You are assessing an 18y/o male patient that was submerged in a backyard in-ground swimming pool for approximately 1-2 minutes before friends pulled him out. On your arrival, patient is alert & oriented x4, lying supine on the pool deck. Your assessment finds slight sounds of rales in both lungs and a small amount white foam coming from the mouth, with a strong radial pulse rate of 100, BP 132/62, RR 20. Based off the chart in the presentation, what grade would you give this patient?
  - A. 4
  - B. 3
  - C. 2
8. Should your patient from question #7 be transported?
  - A. No need all vitals look good & he is conscious
  - B. Yes because patient may develop symptoms over the next 8 hours
  - C. I will not try to convince him if he does not want to be transported
9. Immersion is defined as?
  - A. Airway is above the surface of the liquid
  - B. Simply that you are in the water
  - C. Airway is below the surface of the liquid
10. T/F Hot water immersion can cause orthostatic hypotension?
11. T/F Drowning is an outcome, not a process?