

# Fitness ACSM-CEP

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## Question: 1

Which of the following is not a step in the central dogma of genetics?

- A. Transcription
- B. DNA and the genetic code
- C. Adaptation
- D. Translation

**Answer: C**

Explanation:

The four steps involved in the central dogma include DNA and the genetic code, transcription, translation, and postranslational modification.

DNA and the genetic code are the foundational elements of the central dogma. DNA is then transcribed into mRNA. Next, mRNA is then translated into amino acids. After translation, amino acids (which then combine to become proteins) will go through multiple modifications to fit a specific purpose.

## Question: 2

Which of the following is true regarding muscle protein synthesis in middle-aged adults?

- A. Only aerobic training can stimulate muscle protein synthesis in middle-aged adults
- B. Only resistance training can stimulate muscle protein synthesis in middle-aged adults
- C. Both aerobic exercise and resistance training can stimulate muscle protein synthesis in middle-aged adults
- D. By midlife, testosterone levels are too low in most individuals for any muscle protein synthesis to take place

**Answer: C**

Explanation:

Regardless of the type of exercise, middle-aged individuals can encourage muscle protein synthesis during this time of life by increasing their activity.

While resistance training may provide better results in terms of muscle protein synthesis, cardiovascular exercise is effective as well. Testosterone levels often begin to fall during this time of life, but this does not mean that hypertrophy of both type I and type II fibers is impossible for this age group.

## Question: 3

Which of the following would be the most appropriate recommendation for a client with advanced osteoarthritis (OA) in her knees who wants to start performing aerobic exercise?

- A. Recommend that she start jogging, starting with a mile and increasing her mileage gradually
- B. Recommend that she begin jumping rope
- C. Recommend that she trial an aquatic exercise class
- D. Recommend that she initiate a weight-lifting program

**Answer: C**

Explanation:

Of the available answers, aquatic exercise is the aerobic exercise mode that would put the least stress through the patient's knees.

Jumping rope is a high impact activity that would likely cause the patient significant pain. Resistance training would be important to include in this patient's program, but would not address her desire to start performing aerobic exercise. Jogging is a high impact activity that would likely cause the patient significant pain.

### Question: 4

Which of the following is an appropriate consideration for a patient receiving chemotherapy?

- A. If they have a fever of greater than 100 degrees, exercise should be avoided until the patient is symptom free for more than 48 hours
- B. As long as the patient's platelets are below 50,000, he is safe to proceed with exercise as tolerated and no precautions need to be taken
- C. If the patient's white blood cell count is less than 3,000, he should be encouraged to workout at a public facility in order to boost his immune system
- D. If the patient has developed peripheral neuropathy from the chemotherapy treatment, the CEP should emphasize training with free weights and treadmill walking

**Answer: A**

Explanation:

Fever symptoms often indicate that there may be a systemic issue or an infection. The patient should be encouraged to rest when fever symptoms are present.

Because peripheral neuropathy affects sensation, free weights and treadmills should be avoided to prioritize the patient's safety. Platelet counts should be greater than 50,000, otherwise, physician clearance should be obtained before exercising with said patient. White blood cell counts below 3,000 necessitate the use of extra infection control practices and patients should be encouraged to avoid crowded facilities and gyms due to the risk of transmission.

### Question: 5

Which of the following statements is false regarding Pulseless Electrical Activity (PEA)?

- A. The condition may demonstrate normal ECG findings but, if there is no intervention, the patient's condition will deteriorate quickly
- B. The condition is a harmless abnormality that requires no intervention
- C. The patient will typically have no pulse and no discernable blood pressure
- D. The condition was previously called electromechanical dissociation (EMD)

**Answer: B**

Explanation:

Pulseless electrical activity represents a disconnect between the electrical activity of the heart and the mechanical capability of the cardiovascular system. It is a serious condition that needs to be addressed immediately or the patient will likely be unable to survive for long.

The condition was recently renamed PEA from the former term, EMD. The patient with PEA is unlikely to survive for long once the condition has been diagnosed, unless medical intervention is started immediately. The clinician will be unable to find a pulse on a patient with PEA and will likely have a very hard time obtaining an accurate blood pressure measurement.

### Question: 6

Which of the following is true regarding stress?

- A. Stress usually leads to lower pain ratings
- B. The death of a spouse is an example of acute stress
- C. Acute stress often leads to a dangerously low heart rate
- D. Symptoms of stress are very different from symptoms of depression and anxiety

**Answer: B**

Explanation:

Major life events are typically considered acute stressors. However, without good coping techniques, acute stressors can lead to chronic stress.

Stress often leads to higher pain ratings. Symptoms of stress are very similar to those of anxiety and depression. Acute stress tends to lead to a higher heart rate.

### Question: 7

Which of the following statements is true regarding BMI?

- A. BMI is not a good indicator of health or disease risk for most people
- B. Having a very low BMI that falls in the "underweight" range or a very high BMI that falls in the obese range are both dangerous conditions that can lead to devastating consequences when not addressed
- C. Having a high BMI in the "obese" range is better than having a low BMI that falls in the "underweight" range
- D. High BMI is always associated with high body fat percentage

**Answer: B**

Explanation:

Except in rare situations, everyone should strive to fall within the "normal" BMI range of 18.5 kg/m<sup>2</sup> to 24.9 kg/m<sup>2</sup>. Falling outside of this range in either direction for long periods of time can cause health consequences that may be difficult to recover from.

BMI is not always associated with a high body fat percentage, as some people who are heavily muscle-bound might have a high BMI as well. The reverse is also true: a patient could have a higher body fat percentage but not necessarily a very high BMI. BMI is a good indicator of health and disease risk for most individuals.

### Question: 8

Consider the following exercise:

A patient is standing with his hands down beside his pockets. He is holding a 10 pound dumbbell in each hand. Keeping his elbows straight, he lifts both arms up and out to the side in the frontal plane.

Which of the following is the best description of the exercise and includes one agonist that could accomplish the movement?

- A. Bilateral shoulder extension; erector spinae
- B. Bilateral shoulder abduction; latissimus dorsi
- C. Bilateral shoulder abduction; deltoid
- D. Unilateral shoulder flexion; pec major

**Answer: C**

Explanation:

The description is of bilateral (both sides) abduction (movement away from the midline in the frontal plane) of the shoulder. While there are a few agonist muscles that could accomplish this movement, the deltoid is one of the most obvious.

### Question: 9

For a patient with shoulder instability, which of the following modifications to the barbell bench press would be most appropriate?

- A. Bench pressing is far too dangerous for this patient. He should stick to pushups to work these same muscles.
- B. Bench pressing on an incline bench instead of on a flat bench
- C. Bench pressing while lying on the floor instead of on a bench
- D. Bench pressing with only extremely light weights

**Answer: C**

Explanation:

By limiting horizontal shoulder extension, this patient will avoid putting his shoulder in a vulnerable position that could lead to dislocation. Bench pressing from the ground will inherently limit horizontal abduction/extension range of motion and ensure a more safe range of motion.

Pushups are a great exercise choice for this patient, but it is perfectly acceptable to have this patient modify the bench press as well. This patient can use moderate to heavy weights, as long as proper safety precautions are taken. An incline bench may put this patient's shoulder at increased risk for dislocation.

### Question: 10

Which of the following actions would indicate that a client is in the contemplation stage?

- A. She has asked about the cost for a nearby group fitness class
- B. She has started taking very short walks to her mailbox and back to her house each day
- C. She says that she is uninterested in exercise
- D. She has been exercising consistently for a year

**Answer: A**

Explanation:

When a client is starting to inquire about different ways of getting into fitness, she is in the contemplation stage. In this stage, it's critical that the CEP takes steps to continue to drive the patient's interest by encouraging her to observe a fitness class or tour a gym.

Exercising for more than six months consistently is characteristic of the maintenance stage. Short bouts of exercise that don't meet exercise goals are characteristic of the preparation phase. Stating that one is uninterested in exercise is characteristic of the precontemplation stage.

### Question: 11

A patient's resting blood pressure is 110/70. How should the CEP interpret this finding?

- A. This blood pressure is indicative of prehypertension
- B. This blood pressure may cause a life-threatening situation for this client. The CEP should contact emergency services immediately.
- C. This blood pressure falls within the "dangerously low" blood pressure range. This patient should be referred for extensive medical testing before starting exercise.
- D. This is a normal blood pressure

**Answer: D**

Explanation:

Blood pressures below 120/80 mm Hg are considered normal.

There are no official blood pressure standards that indicate whether blood pressure is dangerously low. Most clinicians do not worry about low blood pressure unless the patient is symptomatic. Prehypertension is defined by blood pressure greater than 120/80 mm Hg but less than 130/80 mm Hg.

## Question: 12

Which of the following is not a type of nucleotide?

- A. Tanine
- B. Adenine
- C. Thymine
- D. Cytosine

**Answer: A**

Explanation:

The only four nucleotides in existence are cytosine, thymine, adenine, and guanine.

Each of the nucleotides is arranged in a specific way, which then leads to the formation of amino acids. Amino acids are then turned into proteins. These proteins are then modified to perform a specific purpose.

## Question: 13

Which of the following is a likely effect of increased aerobic capacity?

- A. Higher diastolic blood pressure at the same intensity of submaximal exercise
- B. Higher respiration rate at the same intensity of submaximal exercise
- C. Increased premature ventricular contractions during exercise
- D. Lower heart rate at the same intensity of submaximal exercise

**Answer: D**

Explanation:

Through adaptations such as increased oxidative capacity in the muscles of the body, you often have a lower heart rate at the same intensity of submaximal exercise as you increase your aerobic capacity.

Diastolic blood pressure is not expected to rise with increased aerobic capacity. Respiration rate may decrease at the same intensity of submaximal exercise. PVCs should not increase in frequency as you increase your aerobic capacity.

## Question: 14

Which of the following would disqualify a worker from receiving workers' compensation?

- A. The injury happened while the worker was performing his employment duties
- B. The worker was a full-time employee
- C. The employer has workers' compensation insurance
- D. The employee is an independent contractor

**Answer: D**

Explanation:

Independent contractors are not eligible for workers' compensation claims.

If the injury happened while the employee was at work and performing work-related duties, he will likely have a claim. The employer must have workers' compensation insurance for there to be a workers' compensation case. Full-time employees are eligible for workers' compensation claims.

### **Question: 15**

What is the most accurate definition of "damages" regarding legal cases?

- A. A valid and binding agreement between two or more parties
- B. Monetary compensation for loss or injury caused by another party
- C. The defendant's response to the other party's claims
- D. A civil wrong that leads to an injury of another

**Answer: B**

Explanation:

Damages deal with the potential money involved in a legal case.

A civil wrong leading to an injury is known as a tort. The defendant's response to the other party's claims is an answer. A valid and binding agreement between two or more parties is a contract.



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