NSCA CSPS - Quiz Questions with Answers

1. Basic Pathophysiology and Science of Health Status, Condition, Disorder or Disease

1.

Which of the following occurs as result of the formation of a thrombus or clot associated with an atherosclerotic lesion that has formed in a branch or in branches of the coronary artery system?

- **Myocardial infarction**
- Chronic heart failure
- Unstable angina

Correct answer: Myocardial infarction

Better known as a heart attack, a myocardial infarction (MI) happens when a thrombus or clot associated with an atherosclerotic lesion forms in the branches of the coronary artery system.

Severity of this condition will vary greatly depending on the amount of tissue that is damaged and the extent of collateral blood flow. Early detection and treatment is essential to reduce symptoms and long-term risk.

2.

Pregnant women should avoid which type of exercise positions after the first trimester?

Supine positions

Prone positions

Pronate positions

Correct answer: Supine positions

Pregnant women should avoid exercise in a supine position after the first trimester. The supine position refers to when someone is lying on their back. Research suggests that lying in a supine position after the first trimester can reduce blood flow to the uterus and cause cardiovascular issues for the mother.

3.

Which of the following is described as a type of lupus that primarily affects the skin without internal disease?

Discoid lupus erythematosus

Lupus erythematosus

Systemic lupus erythematosus

Correct answer: Discoid lupus erythematosus

The type of lupus that primarily affects the skin without internal disease is known as discoid lupus erythematosus.

On the other end of the spectrum, systemic lupus erythematosus is an internal form of lupus that may be classified as either nonorgan threatening or organ threatening.

4.

Which of the following **best** describes the typical American or "Western" diet?

High fat consumption / High meat-based protein consumption / Low plant consumption

High fat consumption / Moderate meat-based protein consumption / Low plant consumption

Moderate fat consumption / High meat-based protein consumption / Moderate plant consumption

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Correct answer: High fat consumption / High meat-based protein consumption / Low plant consumption

The typical American or "Western" diet is comprised primarily of meats and very few vegetables or plant-based options. The fat and protein content is high and it comes from animal sources. The Western diet is associated with the highest risk of becoming overweight or obese. Individuals on this diet tend to develop metabolic health conditions as well such as type-II diabetes.

The plant-based diet, which is associated with fewer cardiovascular conditions, is low in fat content, moderate in protein content, and high in vegetable and fruit content.

5.

Which of the following is described as a loss of consciousness for more than 20 minutes but less than six hours?

Moderate traumatic brain injury

Mild traumatic brain injury

Severe traumatic brain injury

Correct answer: Moderate traumatic brain injury

When there is loss of consciousness for more than 20 minutes but less than 6 hours, this is referred to as a moderate traumatic brain injury (TBI). The symptoms of moderate TBI include the following:

- *Headache (usually doesn't go away)*
- *Vomiting*
- *Nausea*
- *Slurred speech*
- *Convulsions or seizures*
- *Enlargement of the pupil (dark center) of one or both eyes*
- *Numbness or tingling*
- *Loss of coordination*
- *Feeling dazed and confused (The individual may be confused for a period of days to weeks)*

With a moderate TBI, physical, cognitive, and behavioral performance may be impaired for weeks or months.

6.

Which of the following is described as damage to the nerves and blood vessels in your eyes?

Retinopathy

Neuropathy

Peripheral artery disease

Correct answer: Retinopathy

Autonomic neuropathy is a group of conditions caused by damage to your nerves. Retinopathy, a common condition associated with diabetes, involves damage to the nerves and blood vessels in the tissue at the back of the eyes. It can lead to many different symptoms that may impact an exercise session including dizziness and fatigue.

7.

All of the following are risk factors for the female athlete triad **except**:

Between 16 and 26 years of age

Recurrent and non-healing injuries

History of dieting

Correct answer: Between 16 and 26 years of age

As a personal trainer, it will be essential to look for signs and symptoms of the female athlete triad. Early detection can help to limit and avoid medical issues and health complications. Here are the top ten risk factors for the female athlete triad:

1. *History of menstrual irregularities and amenorrhea*
2. *History of stress fractures*
3. *History of critical comments about eating or weight from parent, coach, or teammate*
4. *History of depression*
5. *History of dieting*
6. *Personality factors (such as perfectionism and obsessiveness)*
7. *Pressure to lose weight and/or frequent weight cycling*
8. *Early start of sport-specific training*
9. *Overtraining*
10. *Recurrent and non-healing injuries*

Age is not a factor in determining risk for the health complications of the female athlete triad.

8.

Which of the following transports fat from the intestine to the liver and adipose tissue?

Chylomicrons

Triglycerides

Low-density lipoproteins

Correct answer: Chylomicrons

Chylomicrons are small fat globules composed of protein and lipid, and they are found in blood and lymphatic fluids. Chylomicrons transport fat from the intestine to the liver and adipose tissue. As with triglycerides, high levels of chylomicrons are associated with atherosclerosis.

9.

Which of the following comprise the majority of the body's fat stores?

Triglycerides

Chylomicrons

Lipoproteins

Correct answer: Triglycerides

Triglycerides comprise the majority of the body's fat stores. However, they can also be found in muscle.

Triglycerides are lipids that are carried in the bloodstream to tissues and they are used for energy. High levels of triglycerides are independently associated with a high risk for atherosclerosis.

10.

Which of the following is described as an aching or cramping feeling in the legs, calf, or buttocks induced by exercise?

Intermittent claudication

Peripheral arterial disease

Hypertension

Correct answer: Intermittent claudication

An aching or cramping feeling in the legs, calf, or buttocks (or more than one of these) that is brought on during exercise is known as intermittent claudication (IC). A classic symptom of peripheral arterial disease (PAD), intermittent claudication is caused by insufficient blood flow to the muscles of the lower extremities. The fastest way to alleviate IC is with taking the weight off of the legs and resting.

11.

Which three health risks make up the female athlete triad?

Disordered eating, menstrual dysfunction, and loss of bone mass

Weight gain, increased body hair growth, and unusual muscle soreness

Rhabdomyolysis, high red blood cell count, and weight gain

Correct answer: Disordered eating, menstrual dysfunction, and loss of bone mass

The health risks of the female athlete triad exist among the interrelationships between energy availability, menstrual function, and bone function. When one of these areas are not cared for properly, health complications can manifest in the form of eating disorders, menstrual dysfunction (amenorrhea), and loss of bone mass (osteoporosis).

12.

What is the **optimal** strategy for weight loss and prevention of weight regain for individuals who are obese?

Combination of exercise and calorie restriction

Combination of FDA-approved medication and calorie restriction

Combination of high-intensity exercise and low-intensity (steady state) exercise

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Correct answer: Combination of exercise and calorie restriction

The optimal strategy for weight loss and prevention of weight regain, as defined by NSCA, is a combination of exercise and calorie restriction. By combining these two elements, the goal is to create a daily negative caloric balance. Each item on its own will produce some of the desired effect, but it is rare that either food restriction or increased physical activity alone can produce significant long-term weight loss for obese clients.

There is an FDA-approved medication for weight loss, but the client should discuss this with his or her physician.

13.

What level of severity of postural distortion is acceptable to train?

Mild (or less) severity

Moderately extreme severity

Extreme severity

Correct answer: Mild (or less) severity

To treat or manage certain postural conditions, exercise is often prescribed. With that said, only a certain level of severity is appropriate to train as an exercise instructor. If you have a client who has more than a mild severity of any postural condition, you must refer them to a physician or other health care professional for treatment, including corrective exercise programming.

14.

What is a new term that identifies reduced levels of physical activity inconsistent with public health recommendations?

Exercise-deficit disorder

Physical activity-deficit disorder

Hypo-activity disorder

Correct answer: Exercise-deficit disorder

Exercise-deficit disorder (EDD) is a new term in medical literature that identifies reduced levels of moderate-to-vigorous physical activity. These levels are inconsistent with public health recommendations. This new term has been created in the attempt to raise public awareness for this health care concern.

Once a youth is identified as not meeting daily recommendations for MVPA, the personal trainer must implement strategies to prevent the upsurge in high-risk behaviors during this critical period of life.

15.

For a client with breast cancer, what is the objective of using hormone therapy?

Lower estrogen levels

Increase fertility

Restore estrogen levels

Correct answer: Lower estrogen levels

While a beneficial hormone under normal circumstance, estrogen can increase tumor growth of breast cancers that are hormone receptor positive. This means that the breast cancer can link up with estrogen, progesterone, or both to fuel the growth of the tumor. So, the objective of hormone therapy for breast cancer is to lower estrogen levels as much as possible to stop tumor growth and try to reverse it.

16.

What is one common result of abusing of antithyroid drugs?

Hypothyroidism

Muscle gain

Loss of bone density at a rapid rate

Correct answer: Hypothyroidism

When treating hyperthyroidism, the primary goal is to relieve the effects of thyrotoxicosis. Antithyroid drugs are effective because they inhibit thyroid hormone synthesis in the thyroid gland. Common examples of antithyroid drugs include propylthiouracil (PTU) and methimazole.

With that said, abuse of antithyroid drugs can cause thyroxine levels to swing to hypothyroidism, bringing with it all of the symptoms related to the condition.

It is essential that the personal trainer confirms whether or not the client is using antithyroid drugs since abuse can cause hypothyroidism. What's more, this medication can impact a fitness assessment and exercise session since two common side effects include decreased exercise heart rate and blood pressure.

17.

Which of the following is defined as a narrowing of noncardiac arteries that may result in reduction of blood flow?

Peripheral arterial disease

Hypertension

Pulmonary hypertension

Correct answer: Peripheral arterial disease (PAD)

A narrowing of noncardiac arteries that may result in a reduction of blood flow is known as peripheral arterial disease (PAD). In particular, this condition is caused by fatty deposits and calcium building up in the walls of the arteries. It is common for clients with PAD to complain of leg pain, especially during exercise.

18.

You are working with a client who is older and is considered frail. Which of the following goals would **not** be appropriate for this client?

Increase one-repetition maximum

Reduce the risk of falling

Improve functional capacity

Correct answer: Increase one-repetition maximum

Frailty is associated with the muscular system. While there is no set definition of what a "frail" client is, there are general characteristics that many people share including:

- *Typically older people are frail*
- *Increases with age*
- *Low muscular strength*
- *One symptom of a combination of poor health symptoms*
- *Reduced ability to participate in daily living activities*

Exercise professionals should focus on functional goals for frail clients including working to reduce the risk of falling and improve functional capacity.

Attempting to increase the one-repetition maximum of a frail client would not be appropriate or safe.

19.

Which of the following is described as an acquired injury to the brain that takes place when a sudden shocking force causes damage to the brain tissue?

Traumatic brain injury

Open head injury

Closed head injury

Correct answer: Traumatic brain injury

When a sudden traumatic force to the head causes damage to the brain tissue, this is called a traumatic brain injury (TBI). This type of injury can occur when an external force strikes the head or when the head traumatically makes contact with an object.

If the skull is penetrated by an object, causing damage to specific regions of the brain tissue, this is called an open head injury. If the skull is not fractured or penetrated during the event, then the injury is referred to as a closed head injury.

20.

Which of the following conditions gradually destroys the immune system, making it difficult to effectively fight off infections?

Acquired immune deficiency syndrome

Cancer

Unstable angina

Correct answer: Acquired immune deficiency syndrome

Clients that have tested positive for human immunodeficiency virus (HIV) will develop acquired immune deficiency syndrome, better known as AIDS. As the name implies, this disease destroys the immune system, making it difficult to effectively fight off opportunistic infections. Clients with AIDS are more prone to unusual cancers and other abnormalities.

When a personal trainer is designing a program for a client with AIDS, the prescribed exercises will be based on the stage of immunodeficiency.

While clients are in stage 1 of HIV, they are typically asymptomatic, meaning they have no symptoms and relatively few training restrictions. As the disease progresses, exercise capacity may steadily diminish, making physical exhaustion and muscular fatigue a greater concern.

21.

Specifically, where is low back pain localized?

Below costal margin; above inferior gluteal folds

Below the ilium and sacrum

On the tip of the costal cartilage

Correct answer: Below costal margin; above inferior gluteal folds

Low back pain (LBP) involves varying degrees of pain and discomfort that is localized below the costal margin and above the inferior gluteal folds. Leg pain tends to accompany low back pain, but not always.

22.

Which of the following conditions refers to abnormal blood lipoprotein levels?

Dyslipidemia

Palpitations

Hypoglycemia

Correct answer: Dyslipidemia

Dyslipidemia is a condition involving abnormal blood lipoprotein concentrations. When an individual has an elevated blood level of low-density lipoproteins, elevated serum triglyceride concentrations, or an abnormally low level of high-density lipoproteins, he or she is said to have dyslipidemia.

More specifically, excess cholesterol, particularly oxidized low-density lipoproteins (LDLs), becomes trapped within the inner lining of arteries and eventually builds to the point that the lumen is narrowed and blood flow is impaired.

Dyslipidemia is considered a major risk factor for atherosclerosis, heart attack, and stroke.

23.

Which of the following conditions is a progressive neurological disorder that influences volitional movement?

Parkinson’s disease

Multiple sclerosis

Muscular dystrophy

Correct answer: Parkinson’s disease

A progressive neurological disorder that influences volitional movement is known as Parkinson’s disease (PD).

The second most common neurodegenerative disease, Parkinson’s disease is a progressive brain disorder caused by the death or impairment of neurons in the substantia nigra region of the brain. It is slow to develop and it's most common in older people.

24.

When hypothyroidism is left unchecked, all of the following conditions can develop **except**:

Hypertrophy

Goiter

Myxedema

Correct answer: Hypertrophy

When hypothyroidism is left unchecked, it can lead to more severe conditions; two of the most common include the following:

1. *Goiter: An enlarged thyroid gland*
2. *Myxedema: The swelling of the skin and underlying tissues*

Both of these conditions can be fatal, which is why it's so important for the client to do what is necessary to treat hypothyroidism. It goes without saying that before exercise can begin, medical clearance is required.

Hypertrophy refers to the increase in muscle size. When a client has hypothyroidism, one of the side effects can be muscle loss.

25.

Older clients who are frail tend to have a high risk of which of the following conditions that requires the trainer to make a referral?

Insufficient nutritional intake

Over activity

Hyperflexibility

Correct answer: Insufficient nutritional intake

Older clients in general, but especially frail clients, tend to have a high risk of insufficient nutritional intake such as not eating enough protein or total calories. This can directly impact recovery in a negative way, increasing the risk for strain and injury.

If the trainer recognizes this, it is his or her responsibility to refer the client to a registered dietician or nutritionist so that dietary recall or blood tests (or both) can be undertaken to determine nutritional status. The client will also be able to receive nutritional counseling.

26.

What is the **primary** goal of medication that is taken for atrial fibrillation?

Prevent clot formation

Lower blood pressure

Increase glucose uptake

Correct answer: Prevent clot formation

The primary goal of medication that is taken for atrial fibrillation is to prevent clot formation since clots can form due to inactive atrial tissue. The two most common medications for this condition include Coumadin and Plavix.

Another important goal of medication for atrial fibrillation is to control the ventricular response to increased rate of atrial stimulation.

27.

What does the "T" in the TNM system refer to in regard to cancer treatment?

Size of the tumor

If the cancer has spread to the lymph nodes

If the cancer has reached other major organs

Correct answer: Size of the tumor

Several classification systems exist to track a cancer's process. The TNM (Tumor, Node, Metastasis) system gives three key pieces of information and is currently the most commonly used method.

The "T" reflects the size of the tumor and is ranked based on severity from T0 or no tumor through T4 or a tumor invasion of a vital organ such as the heart or lungs.

28.

Which of the following is described as an abnormal separation of the joint surfaces?

Joint dislocation

Joint sprain

Joint break

Correct answer: Joint dislocation

Unlike a joint sprain, a joint dislocation is an abnormal separation of the joint surfaces. Common acute symptoms of a dislocation include the following:

- *Pain at the joint especially during movement*
- *Limited range of motion*
- *Numbness or tingling*
- *Swelling*
- *Bruising*

29.

What is lumbar hyperlordosis?

Inward curving of the lower back

Outward curving of the lower back

Inward tilt of the pelvis

Correct answer: Inward curving of the lower back

Lumbar hyperlordosis is an inward curving of the lower back that creates a C-shaped curve. Hyperlordosis is associated with conditions such as cerebral palsy, muscular dystrophy, obesity, osteoarthritis, and in some cases pregnancy. Many people who have shortened or tight hip flexor muscles or weak abdominal, lower back, hamstring or gluteus maximus musculature also tend to develop hyperlordosis. Lumbar hyperlordosis can lead to low back pain and it presents an increased risk of lumbar injury.

30.

All of the following are symptoms of chronic fatigue syndrome **except**:

High level of triglycerides

Cognitive impairment

Painful lymph nodes

Correct answer: High level of triglycerides

Chronic fatigue syndrome (CFS) is characterized by persistent, medically unexplained fatigue lasting for at least six months. What's more, CFS is unrelieved by bed rest. Common symptoms include the following:

- *Debilitating fatigue*
- *Sore throat*
- *Nausea*
- *Dizziness*
- *Painful lymph nodes*
- *Headaches*
- *Low-grade fever*
- *Nonrestorative sleep*
- *Sleep disturbances*
- *Cognitive impairment*
- *Depression*

High level of triglycerides is not a common symptom related to chronic fatigue syndrome.

31.

What is the general recommendation for exercise for pregnant women?

150 minutes per week of moderate intensity aerobic activity

150 minutes per week of high intensity aerobic activity

150 minutes per week of low intensity aerobic activity

Correct answer: 150 minutes per week of moderate intensity aerobic activity

According to the U.S. Department of Health and Human Services, the appropriate amount of physical activity or exercise for a pregnant woman is 150 minutes per week of moderate intensity aerobic activity such as brisk walking.

Healthy women who are already accustomed to vigorous intensity aerobic activity such as running can continue doing so during and after pregnancy, but only if approved by a doctor.

32.

According to the World Health Organization, what is the bone mineral density (BMD) that classifies someone as having osteoporosis?

BMD greater than or equal to 2.5 standard deviations below the “young normal” adult score

BMD greater than or equal to 2.5 standard deviations above the “young normal” adult score

BMD equal to 1.5 standard deviations below the “young normal” adult score

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Correct answer: BMD greater than or equal to 2.5 standard deviations below the “young normal” adult score

When a client has a bone mineral density (BMD) at the hip or spine greater than or equal to 2.5 standard deviations (SD) below the “young normal” adult score, he or she has clinical osteoporosis. This is measured by dual-energy x-ray absorptiometry (DXA).

Osteoporosis is a reduction in bone strength that can increase your client's risk of fracture.

33.

Which of the following is the **most common** instigator of an asthma attack?

Exercise

Genetics

Environment

Correct answer: Exercise

The most common instigator of an asthma attack is exercise. In fact, approximately 90% of individuals who have asthma experience a hyperresponsive reaction to exercise. A thorough and responsible assessment is critical to providing an appropriate exercise program and, if needed, medical referral.

34.

Which of the following conditions are clients with obesity **most** prone to?

Musculoskeletal injuries and diseases

Depression

Medication addiction

Correct answer: Musculoskeletal injuries and diseases

Clients with obesity are prone to musculoskeletal injuries and diseases, particularly osteoarthritis and hip, low back, neck, and knee pain. With this in mind, a carefully graded progression is critical.

One way to motivate your client is to remind him or her that joint pain usually improves, sometimes dramatically, following weight loss of as little as 5% to 10% of body weight.

35.

Which of the following is the **primary** reason that children and adolescents with and without autism spectrum disorder are more likely to be overweight or obese?

Trend of decreasing physical activity as age increases

Heavy reliance on prescription medication for condition

Physically unable to perform basic exercises

Correct answer: Trend of decreasing physical activity as age increases

Due to the trend of decreasing physical activity as age increases, children and adolescents with and without autism spectrum disorder are more likely to be overweight or obese.

Encouraging an increase in daily physical activity such as walks, dancing, and gardening is one of the best ways to maintain the benefits gained through an exercise program.

36.

Which of the following describes a broad range of related diseases characterized by altered immune system function in which immune cells attack healthy tissue?

Systemic autoimmune diseases

Percutaneous transluminal coronary angioplasty

Valvular disorders

Correct answer: Systemic autoimmune diseases

There is a broad range of related diseases that are characterized by how the immune system function is altered, resulting in immune cells attacking healthy tissue. These are called systemic autoimmune diseases. Common autoimmune disorders include the following:

- *Rheumatoid arthritis*
- *Lupus*
- *Chronic fatigue syndrome*
- *Fibromyalgia*

37.

What is the **primary** function of a pacemaker?

Correct abnormal conduction activity

Reduce blood pressure

Prepare the client for the training session

Correct answer: Correct abnormal conduction activity

The primary purpose of a pacemaker is to correct abnormal conduction activity in the heart and restore normal rhythm.

There are a variety of types of pacemakers that are available including the following:

- *Rate-responsive*
- *Biventricular pacers*
- *AV pacers*
- *Pacemakers combined with implantable cardioverter defibrillator (ICDs)*

It is important that you confirm with your client the type of pacemaker they have and how long they have had it. This will help you design an appropriate and effective program for that individual.

38.

Which of the following are involved in reverse cholesterol transport?

High-density lipoproteins

Low-density lipoproteins

Very low density lipoproteins

Correct answer: High-density lipoproteins

High-density lipoproteins (HDLs) are referred to as “good cholesterol” and they are composed of a high proportion of protein with little triglycerides and cholesterol. High-density lipoproteins are involved in reverse cholesterol transport, which returns blood cholesterol to the liver and offers protection against atherosclerosis.

High-density lipoproteins appear in two major subfractions: HDL2 and HDL3. The lipoprotein subfraction, HDL2 is also protective against atherosclerosis.

39.

Why is it so difficult to appropriately diagnose or recognize the symptoms of exercise pulmonary hypertension?

Pulmonary arterial pressure normally rises during exercise

Inaccurate readings of breathing

There is no way to test for it

Correct answer: Pulmonary arterial pressure normally rises during exercise

Since the pulmonary arterial pressure (PAP) normally rises during exercise in healthy individuals, this makes the classification of exercise pulmonary hypertension (PH) more difficult than that for resting PH.

With that said, you can look for certain characteristics of exercise pulmonary hypertension: Clients with this condition will have a high PAP accompanied by symptoms of pulmonary hypertension, such as breathlessness, which are not present at rest.

There are several categories of pulmonary hypertension, which makes it essential that a trainer becomes familiar with the signs and symptoms of all categories of the condition in order to provide an appropriate exercise program or medical referral.

40.

All of the following are common symptoms of sickle cell disease **except**:

Low blood pressure

Chronic pain

Swelling of the hands and feet

Correct answer: Low blood pressure

The most common signs and symptoms associated with sickle cell disease are the following:

- *Swelling of the hands and feet*
- *Fatigue and jaundice*
- *Acute crises associated with certain triggers*
- *Chronic pain*
- *Sleep disorders*

Low blood pressure is not one of the typical symptoms of sickle cell disease.

41.

In general, why is caloric restriction **alone** not a recommended solution for weight loss when working with an obese client?

Loss of lean body mass

Higher risk for a metabolic event

Shown not to be effective; no weight loss will occur

Correct answer: Loss of lean body mass

Restricting food consumption is a popular method for weight loss. More often than not, without the proper guidance of a trainer or dietitian, individuals will only focus on food restriction without increasing their physical activity level. Studies show that this usually results in a loss of as much as 20% to 40% of lean body mass. This is problematic as a loss in lean body mass can trigger a reduction in resting metabolic rate (RMR) and the thermic effect of physical activity (EEPA).

Lean body mass increases energy expenditure while at rest. Losing your lean body mass will negatively impact the metabolic response to energy expenditure and it can significantly slow down a client's weight loss progress. An appropriate level of physical activity (EEPA) based on your client's needs and restrictions is required to lose body fat and maintain a healthy amount of lean body mass.

42.

Which of the following is defined as a systolic blood pressure between 120 and 139 mmHg and diastolic blood pressure between 80 and 89 mmHg?

Prehypertension

Hypertension

Heart attack

Correct answer: Prehypertension

When an individual has a systolic blood pressure between 120 and 139 mmHg and diastolic blood pressure between 80 and 89 mmHg, he or she has prehypertension.

Prehypertension can be looked as a warning sign that, if left untreated, could develop into high blood pressure, which dramatically increases your risk for a number of cardiovascular conditions such as heart disease.

The best way to treat prehypertension is with lifestyle changes such as a healthy diet and exercise program.

43.

What are the two primary factors placing undue stress on insurance systems, costing over $90 billion annually in the United States?

Obesity and sedentary lifestyles

Bad legislation and lack of funding for fitness programs

Poor options for food and lack of knowledge of diet

Correct answer: Obesity and sedentary lifestyles

The two primary factors placing undue stress on insurance systems, costing over $90 billion annually in the United States, are obesity and sedentary lifestyles.

Given the increase in inactivity and sedentary lifestyle, personal trainers can expect to see a rapid increase in special populations, especially obesity, under-exercised individuals, and cardiovascular issues stemming from weight gain. This is a primary reason why the industry needs trainers who are experts in special populations.

44.

How often should a client who is obese perform nonfatiguing tests?

Every three to six months

Every six to nine months

Once per year

Correct answer: Every three to six months

A client who is obese is at a higher risk for metabolic disorders such as type-II diabetes. Therefore, it is recommended that the client performs nonfatiguing tests every three to six months. Nonfatiguing tests include the following:

- *Body weight*
- *Body fat percentage*
- *Blood pressure*
- *Fasting blood glucose*
- *Lipids*

45.

Which of the following is defined as an inability of the heart muscle to pump blood at a rate consistent with the metabolic needs, resulting in fatigue or dyspnea?

Chronic heart failure

Unstable angina

Peripheral arterial disease

Correct answer: Chronic heart failure

An inability of the heart muscle to pump blood at a rate consistent with the metabolic needs, resulting in fatigue or dyspnea is known as chronic heart failure (CHF). Also referred to as congestive heart failure, there are two types of chronic heart failure:

1. *Systolic heart failure: The contractility of the left ventricle is impaired, resulting in an ejection fraction < 35% of normal.*
2. *Diastolic heart failure: The left ventricle is not able to relax normally and fill appropriately due to increased stiffness or thickness.*

46.

All of the following are **common** symptoms of multiple sclerosis **except**:

Speech disorders

Vertigo

Walking problems

Correct answer: Speech disorders

Clients with multiple sclerosis may report a wide array of symptoms. The symptom and severity will depend on the breakdown in nerve signal transmission and where exactly the demyelination is occurring. Individuals with MS experience the following common symptoms:

- *Fatigue*
- *Numbness and pain*
- *Walking problems*
- *Balance impairments*
- *Coordination impairments*
- *Bladder dysfunction*
- *Bowel dysfunction*
- *Vision problems*
- *Dizziness*
- *Vertigo*
- *Sexual dysfunction*
- *Cognitive dysfunction*
- *Emotional changes*
- *Spasticity*
- *Depression*

Uncommon symptoms to watch out for include speech disorders, swallowing problems, hearing loss, seizures, tremors, and breathing problems. Make sure you familiarize yourself with the uncommon symptoms as this can be the sign of an emergency.

47.

Which of the following does the human immunodeficiency virus directly attack?

White blood cells

Red blood cells

Hemoglobin

Correct answer: White blood cells

Human immunodeficiency virus, better known as HIV, attacks white blood cells of the immune system, specifically CD4 helper T cells. These cells are critical to immune function. As the virus destroys these cells, this leads to a progressive deterioration of the immune system. Ultimately, this will make an individual more susceptible to opportunistic infections, unusual cancers, and other abnormalities.

48.

Which of the following is considered the **most common** side effect of cancer and cancer treatment?

Cancer-related fatigue

Loss of hearing

Forgetfulness

Correct answer: Cancer-related fatigue

The most common side effect of cancer and cancer treatment is cancer-related fatigue. This is not your normal fatigue of everyday living activities. Cancer-related fatigue is not improved by resting.

This condition affects up to 70% of cancer patients during chemo- and radiotherapy and after surgery and dramatically increases the risk for muscular catabolism and chronic fatigue.

49.

What is the **primary** objective of medications prescribed for lupus erythematosus?

Minimizing tissue damage and symptoms

Increase cellular growth in damaged areas

Reduce pain

Correct answer: Minimizing tissue damage and symptoms

There is no known cure for lupus. Medications that are prescribed for lupus have the primary objective of minimizing the destruction of healthy tissue while reducing the severity of symptoms to improve overall quality of life.

Treatment options for lupus involve a variety of strategies including the following:

- *Anti-inflammatory medications*
- *Exercise*
- *Nutritional supplementation*
- *Corticosteroids*
- *Chemotherapy*

50.

Which of the following types of stroke is a result of bleeding in the brain?

Hemorrhagic stroke

Ischemic stroke

Vascular stroke

Correct answer: Hemorrhagic stroke

A stroke is a loss of neurological functions related to an acute interruption of blood flow to the brain. There are two types of stroke: ischemic and hemorrhagic.

Ischemic Stroke: Blood flow is interrupted by a physical blockage. Approximately 80% of all strokes are ischemic.

Hemorrhagic Stroke: Result of bleeding in the brain. Between 10% to 15% are hemorrhagic in origin.

51.

All of the following are common medical complications related to anorexia nervosa **except**:

Increase in lean tissue

Osteoporosis

Infertility

Correct answer: Increase in lean tissue

Individuals with anorexia nervosa are characterized by having low body weight, obsessing about their body shape and size, especially to look thin and fear of gaining any body weight, and restrictive eating behaviors. Medical complications of anorexia nervosa include the following:

1. *Osteoporosis*
2. *Reduction or loss of menses*
3. *Infertility*
4. *Heart damage*

Muscle gain is not a common medical complication related to anorexia nervosa.

52.

Which of the following is the goal for treating a tumor?

Interfere with enzyme function

Lower blood pressure

Decrease the risk of lymphedema

Correct answer: Interfere with enzyme function

Tumors increase in size based on their own cell reproduction capacity. When an individual gets treatment for a tumor, the goal is to interfere with enzyme function or substrate utilization related to DNA synthesis or function. Disrupting these processes can interfere with tumor growth and stop it from getting bigger and spreading to other parts of the body.

53.

Which of the following is defined as an umbrella term for a collection of symptoms relating to a loss of memory and brain function that interferes with daily life?

Dementia

Intellectual disability

Down syndrome

Correct answer: Dementia

An umbrella term for a collection of symptoms relating to a loss of memory and brain function that interferes with daily life is known as dementia.

A number of disorders affecting the brain can cause dementia, including the following:

- *Alzheimer's disease*
- *Huntington's disease*
- *Parkinson's disease*
- *Creutzfeldt-Jakob disease*
- *Vascular stroke*

54.

All of the following are catheter-driven treatments for coronary atherosclerosis **except**:

Coronary artery bypass grafting

Percutaneous transluminal coronary angioplasty

Percutaneous coronary intervention

Correct answer: Coronary artery bypass grafting

The two most common catheter-driven treatments for coronary atherosclerosis are percutaneous transluminal coronary angioplasty (PTCA) and percutaneous coronary intervention (PCI). During these treatments, a balloon-tipped catheter is guided to the site of the lesion and expanded with the purpose of reducing the plaque and restoring blood flow. Both treatments dramatically improve the client's training response, resulting in a significant spike in health benefits related to exercise.

Coronary artery bypass grafting is a type of open heart surgery.

55.

Which of the following conditions is characterized by persistent, medically unexplained fatigue lasting for at least six months?

Chronic fatigue syndrome

Lupus

Cardiovascular disease

Correct answer: Chronic fatigue syndrome

The condition that is characterized by persistent, medically unexplained fatigue lasting for at least six months is known as chronic fatigue syndrome (CFS). What's more, CFS is unrelieved by bed rest.

Due to the constant feelings of fatigue, individuals with CFS experience an immediate decline in physical activity, health, and overall quality of life.

56.

Which of the following BMIs is associated with a 30-fold greater risk of developing type 2 diabetes?

> 35

< 29

< 23

Correct answer: > 35

Studies show that individuals with a BMI (body mass index) greater than 35 have up to a 30-fold greater risk of developing type 2 diabetes compared to individuals with a BMI less than 23.

In the United States, approximately 29.1 million people have diabetes while another 86 million are estimated to have prediabetes. Over 75% of type 2 diabetes cases occur among obese, inactive adults.

57.

What is the most relevant definition of "good posture" as it relates to physical performance and wellbeing?

Alignment that allows for optimal movement and function

Alignment that refers exclusively to specific exercises

Arrangement of the body in relation to the equipment (e.g., weight-bearing machine)

Correct answer: Alignment that allows for optimal movement and function

Good posture can be defined as the alignment of the musculoskeletal system that allows for the maximum efficiency of body movement and functions. What's more, good posture also ensures that you are not placing inappropriate pathological stress on the muscular, skeletal, or nervous systems.

58.

Which of the following types of cerebral palsy affects all four extremities and is the **most** restrictive to independent gait?

Spastic tetraplegia

Spastic hemiplegia

Athetoid

Correct answer: Spastic tetraplegia

Spastic tetraplegia is the most restrictive to independent gait. Due to excessive muscle tone and tremors that interfere with energy-efficient movements, spastic tetraplegia affects all four extremities.

59.

Which of the following is described as a sprain that has moderate degrees of tenderness and swelling, with tearing of some fibers but not the entire ligament?

Grade 2 sprain

Grade 1 sprain

Grade 3 sprain

Correct answer: Grade 2 sprain

A grade 2 sprain, also called a moderate sprain, has moderate degrees of tenderness and swelling, with tearing of some fibers but not the entire ligament, and possible mild joint instability.

60.

Which of the following is one of the leading causes of preventable deaths?

Sedentary lifestyles

Supplement recommendations

Incorrect dietary recommendations

Correct answer: Sedentary lifestyles

One of the leading cause of preventable death is a sedentary lifestyle. Avoiding physical activity has been shown to increase the risk of developing numerous diseases including cardiovascular disease, diabetes, hypertension, obesity, osteoporosis, and lipid disorders.

61.

Which of the following populations is **most** at risk for hypothyroidism?

Women

Men

Adolescent boys

Correct answer: Women

Studies show that women are the most at risk for hypothyroidism, with an estimated 3% of U.S. women suffering from it. In fact, hypothyroidism is seven times more prevalent in women than in men.

Worldwide, it is estimated that 7% to 10% of the population has subclinical hypothyroidism, which is when an individual has low serum thyroid-stimulating hormone in the presence of normal levels of triiodothyronine and thyroxine.

It is important to recognize the symptoms of hypothyroidism, especially in female clients, because this will help the trainer refer the client to a medical professional, if necessary, and create an appropriate exercise program.

62.

All of the following are common symptoms to watch out for when working with a client with fibromyalgia **except**:

Elevated level of blood glucose

Raynaud's phenomenon

Gastrointestinal distress

Correct answer: Elevated level of blood glucose

Other than chronic muscular pain and fatigue, common symptoms associated with fibromyalgia include the following:

- *Generalized stiffness*
- *Anxiety*
- *Depression*
- *Non-restorative sleep*
- *Heightened pain perception*
- *Gastrointestinal distress*
- *Headaches*
- *Sensitivity to light*
- *Joint swelling*
- *Mood swings*
- *Cognitive impairments (a.k.a. "fibro fog")*
- *Irritable bowel and bladder syndrome*
- *Raynaud's phenomenon, a condition that involves the narrowing of blood vessels when a person is cold or feeling strong emotions*

An elevated level of blood glucose is not a common symptom of fibromyalgia.

It is imperative that the trainer becomes familiar with these symptoms as they can directly impact assessments and exercise sessions.

63.

All of the following are symptoms of hypothyroidism **except**:

Unexplained weight loss

Unexplained weight gain

Hair loss

Correct answer: Unexplained weight loss

When the thyroid gland, which is located in the anterior neck region, does not produce enough of the hormone thyroxine, this is a condition known as hypothyroidism. Symptoms of hypothyroidism, also known as an underactive thyroid, include the following:

- *Fatigue*
- *Cold intolerance*
- *Dry skin*
- *Unexplained weight gain*
- *Puffy face*
- *Hoarseness*
- *Muscle aches and weakness*
- *Elevated blood cholesterol*
- *Stiff and painful joints*
- *Loss of bone mineral density*
- *Hair loss*
- *Depression*
- *Slowed heart rate, and impaired memory*

64.

Which of the following conditions is characterized by chronic inflammation of the joints of the body?

Rheumatoid arthritis

Osteoarthritis

Gout

Correct answer: Rheumatoid arthritis

Rheumatoid arthritis (RA) is an autoimmune disease, which means immune cells attack healthy tissue. In this case, RA causes chronic inflammation of the joints of the body.

It typically develops after the age of 40, and the long-term impacts of this condition include atrophy of muscles, joint deformity, and disability.

65.

What is the **most** common symptom of an individual with Parkinson's disease?

Muscular tremors

Lack of facial expression

Slurred speech

Correct answer: Muscular tremors

Parkinson’s disease (PD) is a progressive neurological disorder that influences volitional movement. It is the second most common neurodegenerative disease, and it is caused by the death or impairment of neurons in the substantia nigra region of the brain. The most common symptom of PD is muscular tremors.

Other symptoms of PD include the following:

- *Muscular stiffness*
- *Slow movements*
- *Lack of facial expression*
- *Lack of arm swing during walking*
- *Slurred speech*

66.

The risk of frailty is associated with a combination of age-related deficits, nutritional deficiencies, and which of the following?

Environmental stressors

Medication abuse

Genetics

Correct answer: Environmental stressors

Frailty is generally considered the result of a multi-factorial interaction of the following three conditions:

1. *Age-related deficits in various physiological and psychological systems*
2. *Nutritional deficiencies*
3. *Environmental stressors*

67.

Which of the following is chest pain that predictably happens under a specific amount of exercise?

Stable angina

Unstable angina

Intermittent claudication

Correct answer: Stable angina

Angina is described as chest pain that occurs in response to myocardial ischemia or reduced blood flow to the myocardium. There are two forms of angina: stable and unstable.

1. *Stable angina: This happens when the individual performs a specific level of stress such as physical activity. It is predictable, and it is rapidly alleviated with rest or nitroglycerin.*
2. *Unstable angina: This condition is far less predictable. Unstable angina can occur, and often does, while resting.*

Since there are a number of forms of unstable angina associated with acute coronary events, individuals with this condition are typically not candidates for exercise programming until after the acute event has been stabilized.

68.

What is the **primary** limiting factor during exercise for clients with peripheral arterial disease?

Intermittent claudication

Labored breathing

Dizziness

Correct answer: Intermittent claudication

Intermittent claudication (IC) is an aching feeling in the legs, calves, and buttocks brought on by exercise. Not all clients with peripheral arterial disease will have intermittent claudication. However, clients that do have IC will often be limited in how much exercise and activity they can perform. In fact, the amount of exercise that a client with IC can do is usually low in comparison to clients without IC.

With that said, exercise can improve and increase the amount of work a client with IC can perform before the pain sets in.

69.

Pulmonary hypertension is commonly associated with which of the following?

Hypoxic cardiopulmonary disease

Dangerously low blood sugar

Low bone density

Correct answer: Hypoxic cardiopulmonary disease

It is common for clients with pulmonary hypertension to also have one of several hypoxic cardiopulmonary diseases, including COPD (chronic obstructive pulmonary disease)and diffuse parenchymal lung diseases.

It is important for a trainer to be aware of the associations with pulmonary hypertension as a client might have a severe case of the condition and need to be referred to a medical professional for a fitness assessment and exercise program.

70.

Which of the following is an underlying cause of low exercise tolerance in individuals with chronic heart failure?

Increased muscle lactate

Ischemia

Lower body pain

Correct answer: Increased muscle lactate

Studies show that the constant activation of both the sympathetic and renin-angiotensin systems and the concomitant reduction in blood flow lead to a shift to anaerobic metabolism. The result is an increase in muscle lactate accumulation. The severe exercise intolerance that is characteristic of clients with chronic heart failure is due in part to lactate accumulation at low exercise levels.

71.

Most metabolic disorders are preventable. By practicing a low-risk lifestyle, which percentage **best** reflects the decrease in risk from metabolic conditions?

72% to 90% lower risk

50% to 62% lower risk

35% to 48% lower risk

Correct answer: 72% to 90% lower risk

Most metabolic disorders are preventable. Metabolic conditions such as type-II diabetes and obesity can be avoided by following a low-risk lifestyle. Strong evidence suggests that by practicing a low-risk lifestyle, you have a 72% to 90% lower risk of developing a metabolic disorder.

Examples of low-risk lifestyle habits:

- *Exercise or physical activity: 30 minutes or more for 5 days per week*
- *Plant-focused diet with plenty of fiber, lean proteins, and healthy fats*
- *No smoking*
- *No excessive alcohol consumption*

72.

Increased physical activity reduces the chances of developing which of the following?

Preventable diseases

Weight loss

Muscle mass

Correct answer: Preventable diseases

When you increase your levels of physical activity, you reduce the chance of developing certain preventable diseases including the following:

- *Cardiovascular disease*
- *Metabolic disease*
- *Diabetes mellitus*
- *Obesity*
- *Hypertension*

On the other hand, if you decrease your level of physical activity, you will increase your risk of developing these diseases.

73.

According to the TNM system, if an individual has a tumor categorized as T1 N0 M0, which of the following would **best** describe the tumor?

Small tumor that has not spread

Medium tumor that has started to spread

Severe tumor that has already spread

Correct answer: Small tumor that has not spread

Several classification systems exist to track a cancer's process. The TNM (Tumor, Node, Metastasis) system gives three key pieces of information and is currently the most commonly used method.

A tumor categorized as T1 N0 M0 would be best described as a small tumor that has not spread. For reference, a tumor categorized as T4 N4 M4 would be described as a large tumor that has spread.

74.

Decreases in estrogen during menopause can lead to which of the following conditions?

Osteoporosis

Weight loss

Increase in bone density

Correct answer: Osteoporosis

The most notable change during menopause and postmenopause is the decrease in the hormone, estrogen. Studies show that a significant decrease in estrogen can negatively impact bone health and fat metabolism.

In particular, the change in estrogen levels can cause an imbalance in the bone remodeling system. As a result, the bone becomes more porous and brittle, leading to the development of osteoporosis and an increased risk of fractures.

Women can increase muscular strength and bone density by participating in an exercise program that combines both aerobic and resistance exercise.

75.

In which of the following conditions are excessive amounts of free triiodothyronine produced and secreted?

Hyperthyroidism

Hypothyroidism

Subclinical hyperthyroidism

Correct answer: Hyperthyroidism

Also referred to as having an overactive thyroid, hyperthyroidism, is a condition in which the thyroid gland produces and secretes excessive amounts of free triiodothyronine or thyroxine. This means that the thyroid hormones are not bound to a protein.

A common cause of hyperthyroidism is having Graves' disease. The following are common symptoms associated with hyperthyroidism:

- *Nervousness, anxiety, or crankiness*
- *Mood swings*
- *Fatigue or weakness*
- *Sensitivity to heat*
- *Swollen thyroid*
- *Sudden weight loss*
- *Fast or uneven heartbeat or palpitations*
- *Increased bowel movements*
- *Tremors*
- *Insomnia*
- *Thinning skin*
- *Fine, brittle hair*
- *Changes in menstrual cycle*

Hyperthyroidism is approximately four to five times more prevalent among women than among men. This makes it essential for the trainer to be able to recognize the symptoms of hyperthyroidism, especially in women, because this will help the trainer refer the client to a medical professional, if necessary, and create an appropriate exercise program.

76.

All of the following are characteristic of low-risk lifestyle habits **except**:

Alcoholic drinks: 2 per day for women / 3 per day for men

Plant-focused diet with plenty of fiber, lean proteins, and healthy fats

Exercise or physical activity: 30 minutes or more for 5 days per week

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Correct answer: Alcoholic drinks: 2 per day for women / 3 per day for men

A low-risk lifestyle can dramatically decrease your risk by 72% to 90% for metabolic conditions such as obesity and type-II diabetes. Examples of low-risk lifestyle habits include:

- *Exercise or physical activity: 30 minutes or more for 5 days per week*
- *Plant-focused diet with plenty of fiber, lean proteins, and healthy fats*
- *No smoking*
- *No excessive alcohol consumption*
- *BMI (body mass index): 18.9-24.9*

77.

Which of the following describes what is wrong with the lungs in someone who has asthma?

Inflammation

Soreness

Bleeding

Correct answer: Inflammation

The primary characteristic of asthma is airway inflammation. Asthma is a chronic disease of the lungs, which leads to airway remodeling and hyperresponsiveness.

Despite 25 million people suffering from asthma, only 10% of this population has an exercise-related exacerbation.

78.

Which of the following types of client is the **most** at risk for exercise induced bronchoconstriction (EIB)?

Client who is a cross-country skier

A client struggling with weight issues

Diabetic client

Correct answer: Client who is a cross-country skier

Approximately 10% of the general population has symptoms of exercise induced bronchoconstriction (EIB). Although it might seem counterintuitive, some athletes are at a high risk due to their exercise environment. Clients who participate in cross-country skiing, ice skating, or swimming have a greater risk of EIB.

As a part of a thorough fitness assessment, a trainer must inquire as to habits, exercises, and sports that the client performs outside of training sessions. It's also important to ask about incidents with exercise induced bronchoconstriction. This will help to design a safe and appropriate assessment and exercise program.

79.

Each of the following is a category of insulin **except**:

Slow-acting insulin

Rapid-acting insulin

Intermediate-acting insulin

Correct answer: Slow-acting insulin

There are four categories of insulin that the personal trainer should be aware of when working with a client who has type 1 diabetes. These categories are based on the length of the delay before the effects of the drug kick in and on the duration over which it regulates the individual's blood glucose level.

1. *Rapid-acting insulin: Reduces glucose levels within 15 minutes. Effect only lasts for a few hours.*
2. *Short-acting insulin: Becomes active in about 30 minutes. Lasts for 3 to 6 hours.*
3. *Intermediate-acting insulin: Becomes active in 2 to 4 hours after administration. Lasts up to 18 hours.*
4. *Long-acting insulin: Becomes active several hours after administration. Lasts for 24 hours.*

80.

Which of the following is described as damage to one of the valves that normally allows passive blood flow from the atria to the ventricles?

Valvular heart disease

Cardiac conduction defect

Atrial fibrillation

Correct answer: Valvular heart disease

Valvular heart disease (VHD) is described as damage that affects one of the valves that normally allows passive blood flow from the atria to the ventricles. It also impacts the blood flow from the ventricles to the aorta, pulmonary artery, or both. Symptoms of valvular heart disease include the following:

- *Dyspnea*
- *Fatigue*
- *Pain*
- *Palpitations*

The severity of the symptoms of VHD depend on the degree of damage as well as the valve affected.

81.

Primary causes of hypothyroidism include all of the following **except**:

Saturated fat-focused diet

Autoimmune disease

Iodine deficiency

Correct answer: Saturated fat-focused diet

The primary causes of hypothyroidism include iodine deficiency, autoimmune disease (Hashimoto's thyroiditis), and partial or total removal of the thyroid gland.

Studies show that stress and a diet high in simple, processed carbohydrate and saturated and trans fat might contribute to hypothyroidism, but they are not primary causes.

A client with hypothyroidism can see great improvements by making lifestyle changes on top of following the advice and prescription medication plan from his or her doctor.

82.

What is the **primary** method of improving bone mass for women going through menopause?

Resistance training

Low-calorie diet

Calcium supplements

Correct answer: Resistance training

Women going through menopause have a high risk of developing osteoporosis. Resistance training has been shown to improve bone mass. The mechanical strain of resistance training can stimulate bone growth and improve bone strength, which will reduce the risk of fractures.

One study recommends an exercise program that combines the following:

- *Resistance training exercises of high intensity and low volume*
- *Aerobic endurance exercises*
- *Plyometric (jumping training) exercises*
- *Calcium and cholecalciferol (vitamin D) supplements*

The women in this study showed positive benefits on blood lipids, increased muscular strength, and maintenance of bone mass in the spine and femoral head.

As a personal trainer, you should not recommend supplements. Instead, have your client talk with her doctor about diet and dietary supplements.

83.

Asthma and which of the following conditions are risk factors for one another?

Obesity

Cardiovascular disease

Stroke

Correct answer: Obesity

Studies show an interesting relationship between asthma and obesity: they are suggested to be risk factors for one another.

Asthma is a risk factor for obesity because asthma sufferers tend to have a decreased level of exercise. A sedentary lifestyle is a primary cause of obesity.

Obesity is a risk factor for asthma because airway obstruction and peak flow variability are increased in obese populations. But once there is a significant decrease in fat mass and body mass index, there is an improvement in airway function.

84.

What is said to be the **primary** cause of chronic obstructive pulmonary disease (COPD)?

Smoking

Pollution

Genetics

Correct answer: Smoking

Studies suggest that smoking is responsible for 80% to 90% of COPD cases. Other factors that contribute to causing COPD or worsening the condition for those who already have it include the following:

- *Toxic gases*
- *Environmental particles*
- *Air pollutants such as dust, cooking fumes, and internal combustion fumes*
- *A history of repeated lower respiratory tract infections during childhood*
- *Pulmonary tuberculosis*
- *Chronic asthma*
- *Poor nourishment*
- *Poor SES (socioeconomic status)*
- *Alpha-1 deficiency*

85.

Which of the following has been shown to be the **most** effective for reducing the risk for developing type 2 diabetes and could possibly reverse type 2 diabetes?

Lifestyle change therapy

Metformin

Prediabetes insulin injections

Correct answer: Lifestyle change therapy

There are several goals of medical therapy for type 2 diabetes:

- *Improve insulin resistance*
- *Reduce liver secretion of glucose*
- *Stimulate pancreatic beta cells to secrete insulin*

Studies show that lifestyle change therapy is the most effective way to reduce the risk for developing type 2 diabetes and it can possibly reverse the disease.

Despite the fact that lifestyle change therapy has been shown to be more effective than metformin, a commonly prescribed medication for diabetics, a large percentage of persons with type 2 diabetes are still prescribed medications.

86.

Individual with type 1 diabetes have to worry about high blood sugar levels causing increased urination, risk of dehydration, and which of the following serious complications?

Ketoacidosis

Heart attack

Syncope

Correct answer: Ketoacidosis

For a client with type 1 diabetes, high blood sugar levels can start the individual off on a series of cascading events. High blood sugar increases urine production, which will increase the risk of dehydration. If these two things are left unchecked, ketoacidosis can eventually occur.

Ketoacidosis happens when the body cannot take in the glucose from the blood into the cells due to the absence of insulin. As a substitute, the body uses fat and protein for energy. When using fat as fuel, ketones are an acidic by-product. An accumulation of these ketones lowers the pH of the blood and results in ketoacidosis.

87.

Which of the following is **not** associated with consistently high levels of glucose?

Unexplained weight loss

Congestive heart failure

Kidney disease

Correct answer: Unexplained weight loss

It is common for someone who has chronically high levels of glucose to be at a higher risk of developing one or more of several secondary complications such as the following:

- *Coronary artery disease–myocardial infarction: Blockage of blood flow to the heart muscle.*
- *Congestive heart failure: A complication of heart disease that affects the pumping power of your heart muscles.*
- *Cerebral vascular accident: Better known as a stroke, diabetes is a major risk factor for this condition.*
- *Hypertension: Also called high blood pressure, this is when the pressure against the arterial walls is too high.*
- *Kidney disease: Damaged kidneys are not able to filter blood, which can lead to renal failure.*
- *High triglycerides and low HDLs: Elevated levels of bad cholesterol can increase the risk for heart disease.*
- *Eye disease: Diabetes is a major cause of retinopathy and blindness.*
- *Neuropathies and autonomic dysfunction: High glucose levels can decrease exercise capacity, heart rate response, heart rate variability, and recovery heart rate.*
- *Peripheral artery disease: Insufficient blood flow to limbs.*

Unexplained weight loss is not typically associated with high levels of blood glucose.

88.

Which of the following reasons is the **primary** cause of early mortality in those individuals with sickle cell disease?

Multi-organ damage

Bone loss

Cognitive decline

Correct answer: Multi-organ damage

Individuals with sickle cell disease are at a higher risk for early mortality due to multi-organ damage. This is because the malformed sickle cells and hypercoagulation cause the red blood cells to stick to one another. As a result, thrombosis forms, affects many organ functions, and causes long-term damage.

89.

All of the following are proven benefits of exercise for individuals in the frail population **except**:

Increase sprinting speed

Improve balance

Decrease risk of falls

Correct answer: Increase sprinting speed

Studies show that guided and supervised exercise and physical activity can provide a number of benefits for frail individuals including the following:

- *Improve balance*
- *Increase performance in activities of daily living*
- *Increase gait speed*
- *Decrease the risk of falls*
- *Improves other markers of functional capacity*

While exercise might improve walking speed and mobility, it is not recommended to focus on increasing a frail client's sprinting speed as this dramatically increases the risk for injury. This is also not a functional or recommended goal given the client.

90.

Which of the following is common with the development of rheumatoid arthritis?

Immune system attacks the joint synovial lining

Men are at a higher risk than women

Easily curable with prescription medication

Correct answer: Immune system attacks the joint synovial lining

Rheumatoid arthritis is caused by the immune system releasing antibodies that attack the cartilage and synovial lining of the joints (synovitis) and cause inflammation. The synovia provides a protective layer for the joints and tendons. As the disease progresses and the inflammation worsens, the joint becomes filled with synovial fluid.

91.

Which of the following is the **primary** indicator of the severity of asthma?

Degree to which medication is needed

Number of coughing fits

Lightheadedness

Correct answer: Degree to which medication is needed

There are a variety of factors or indices that can be used to classify the severity of a client's asthma status. The primary indicator is the degree to which medication is needed to alleviate the symptoms.

Common symptoms of asthma include wheezing, shortness of breath, tightness in the chest, and coughing. Ask your client how often he or she needs asthma medication to alleviate these symptoms. Frequent usage will indicate moderate to severe asthma.

92.

What is the leading factor that will contribute to the increase of various special populations?

Increasing rate of inactivity

Dietary confusion

Side effects of medications

Correct answer: Increasing rate of inactivity

Nearly one-half of all U.S. adults have at least one chronic medical condition. One-quarter of U.S. adults have more than two chronic medical conditions. Chronic medical conditions include the following:

- *Hypertension*
- *Coronary heart disease*
- *Stroke*
- *Diabetes*
- *Cancer*
- *Arthritis*

It is due to the increasing rate of inactivity that various special populations are expected to grow in size.

93.

Which of the following is a key aspect in the development of lesions and clots that lead to a heart attack?

Chronic inflammation

Certain medications

Dietary choices

Correct answer: Chronic inflammation

One of the primary contributors to the development of lesions and clots that can lead to myocardial infarction is chronic inflammation. One area that is particularly vulnerable to the effects of chronic inflammation is any area where bifurcation (branching) of blood vessels occurs. Inflammation can cause blood flow in these areas to become more turbulent rather than laminar and contribute to plaque rupture.

Risk factors for chronic inflammation primarily focus on lifestyle choices such as diet and exercise. Conditions such as high blood pressure, hyperlipidemia, and diabetes, as well as family history also play an important role in its development.

94.

Which of the following is described as a complex group of conditions that are behaviorally defined and characterized by deficits in social communication and social interaction?

Autism spectrum disorder

Cognitive disorder

Traumatic brain injury

Correct answer: Autism spectrum disorder

A complex group of behaviorally defined conditions that have multiple etiologies with varying levels of severity is known as autism spectrum disorder (ASD). This group of disorders is characterized by the following:

- *Deficits in social communication*
- *Deficits in social interaction*
- *Restrictive repetitive behaviors, interests, and activities*
- *Sensitivity to sensory stimuli of all kinds (taste, touch, smell, sound, and sight)*
- *Stereotyped behaviors, including various physical actions like body rocking, hand clapping, and echolalia or repetitive vocalizations*
- *Obsession with an object or topic of interest*
- *Insistence on sameness*

95.

In an individual with multiple sclerosis, which of the following is described as inflammation that triggers current symptoms to rapidly worsen or new symptoms to arise?

Flare-ups

Demyelination

Autoimmune disease

Correct answer: Flare-ups

In an individual with multiple sclerosis, flare-ups, also called exacerbations, are described as times when the central nervous system experiences unexpected inflammation. As a result, the inflammation triggers current symptoms to rapidly worsen or new symptoms to arise.

96.

Which of the following is described as an area of ballooning on a blood vessel due to weakening of the vessel wall?

Aneurysm

Hemorrhagic stroke

Global ischemia

Correct answer: Aneurysm

Hemorrhagic strokes are caused by the rupture of a blood vessel due to damage to the vascular structure, such as cerebral aneurysms or chronic high blood pressure. An aneurysm is an area of ballooning on a blood vessel due to weakening of the vessel wall. Over time, particularly with high blood pressure, the bulging area may rupture, causing bleeding into the brain.

97.

Which of the following is also known as general cognitive disabilities or mental retardation?

Intellectual disability

Down syndrome

Autism spectrum disorder

Correct answer: Intellectual disability

General cognitive disabilities or mental retardation is best known as intellectual disability. Clients with an intellectual disability have a delay in cognitive (mental) maturation, and they will exhibit the following characteristics:

- *Significantly below-average scores on tests of mental ability, or intelligence*
- *Limitations in the ability to function in areas of daily life*
- *Limitations in communication skills*
- *Inability to perform activities of self-care*
- *Inability to perform appropriately within social situations including school activities*

98.

All of the following damage nephrons (the kidneys' microscopic filtration systems) **except**:

High levels of aerobic exercise

High levels of glucose

High levels of inflammation

Correct answer: High levels of aerobic exercise

Nephrons are the kidneys' anatomical filtering structures. Blood goes through nephrons, and these tiny filtration systems absorb waste products and return fluid and non-waste material back to circulation. High levels of glucose, blood pressure, inflammation, and other mechanisms can damage nephrons, impairing their ability to filter waste products.

Studies show that cardiovascular endurance exercise, such as aerobic exercise, improves functional capacity in individuals with chronic kidney disease.

99.

What is one concern about using opiates for low back pain as it relates to physical performance?

May negatively affect hand–eye coordination

Dangerously decreases blood pressure

Increases risk of an adverse event

Correct answer: May negatively affect hand–eye coordination

Few studies exist regarding the effect of opiates on exercise performance and adherence. With that said, there is some evidence to suggest that opiates may negatively affect hand–eye coordination. While this should not prevent a trainer from conducting an assessment and creating an exercise program, this fact must be taken into account.

100.

The at-rest levels of adenosine triphosphate (ATP) and creatine phosphate (CP) in children are similar, higher, or lower than those of adults?

Similar

Higher

Lower

Correct answer: Similar

Studies show that the at-rest levels of adenosine triphosphate (ATP) and creatine phosphate (CP) in children are similar to those of adults. Despite similar levels, research shows that children cannot perform as well as adults during short-burst, high-energy activities lasting 30 to 120 seconds.

This information can help to accurately prescribe the intensity levels and resting periods of an exercise program for a youth client.