

Exercises essay examples

[Philosophy](#), [Freedom](#)



1. Principle of specificity: only the muscles trained will respond. a. Provide a concrete example of the principle of specificity to athletics/sports preparation, personal fitness training, or rehabilitation. 2 points.

Specificity is the change that occurs in the body as a result of training.

Specificity in athletics comes in when the athlete trains repeatedly performing specific activities in preparation for the exact requirements of a sport. Distant runners require doing exercises that would make them adapt to sustained running. On the other hand, throwers need to train in a way to build up their muscles in size and thickness in order to improve on power.

These two examples therefore bring out the principle of specificity where only the muscles that are trained to respond. b. Briefly explain why only the muscles that are trained will respond. Include two physiological (muscle and/or neural) mechanisms in your answer. 2 points.

The muscles that are trained tend to respond in a systematic form when they are put into action since they gain power when trained and also they get the ability to sustain any form of work or task impounded on them². Degrees of Freedom: the greater the number of joints involved in a movement/exercise the more difficult it is to execute safely and correctly. a. Briefly explain why the degrees of freedom are true. 2 points.

The degree of freedom is true since the motor system is tremendously complex and also movements occur at different levels, hence making it difficult to execute safely and correctly when various joint movements are involved. b. What do the degrees of freedom mean to working with novice exercisers? In other words, would it be appropriate to start a new exerciser with alternating walking lunges with overhead presses? Why or why not? 2

points.

Working out a new exercise with alternating walking lunges with overhead presses would not be appropriate for such an exercise involves not only one joint movement but several. As such, it would be appropriate to start off with the walking lunges before bringing in overhead presses. c. Provide an example that illustrates a movement with one degree of freedom and one that illustrates a movement with many degrees of freedom. 2 points.

An example of a one degree of freedom movement is the biceps exercise while a movement with many degrees of freedom is the walking lunges. 3.

Overload Principle: you must overload the system (muscles) for it to respond by growing in size and strength. a. Choose one exercise and give two examples of how it can be made more difficult to overload the system. 2 points.

Walking lunges can be used as an example of an exercise that can be made more difficult by overloading the system. The system overload can be attained through holding dumbbells while doing the walking lunge exercise. Also it can be made difficult by variation of movement while performing the exercise. b. Although light walking is a great place for people to start and can be part of a fitness program, explain why walking doesn't meet the criteria of overload for fit persons. 2 points.

This is because walking is a normal routine and the body is used to doing so and as such it does not meet the standards of qualifying to be an overload exercise since it does not put pressure to muscles to build those more or work them out more. 4. Adaptation Principle: whatever you do repeatedly the body will adapt to. a. What does that mean to you as an Exercise Scientist?

Relate your answer to the overload principle. 2 points.

This can be well illustrated by the use of the example of weight lifting. If you start lifting 20kgs oftenly, the body would get used to this and it would be like a normal thing for it to do. Therefore it would be important to add more weight day by day for your muscles to grow. This is indeed stated by the overload principle which says that, you must overload the system (muscles) for it to respond by growing in size and strength. b. How does adaptation relate to hitting a plateau? How will you explain this concept to persons that do not have any background in exercise science? 2 points.

Another action that is limited by the weakest link is the weight lifting for the chest. This is so as you find that the muscles of one of the hands might not be as powerful as on the other hand. This also depends on individuals as some individuals basically have their muscles right hand stronger and more powerful than their left hand muscles or vice verser. This hence shows how the principle of individual variability applies⁶. Define what a motor unit is made up of. State the two primary types of motor units based on muscle fiber type. 3 points.

A motor unit consists a motor neuron and the skeletal muscle fibers that are inverted by the axon. The primary muscle fiber types are the slow twitch oxidative and the fast twitch oxidative. 7. State the two types of nerve classified on whether they are carrying information out of the central nervous system or carrying it towards the central nervous system. What is the anatomical term for a nerve carrying movement information to a muscle? 3 points.

The two types of nerves are; sensory nerves which carry information to the

central nervous system and the motor nerves which carry information away from the central nervous system. The term used for a nerve carrying movement is continuous conduction or transmission. 8. A client has come you because (s)he has been diagnosed with chronic low back pain (CLBP). The root source of that CLBP has been determined to be a muscular imbalance. First, define muscular imbalance in one to two statements. Second, briefly describe the first phase of the training program that you would design for this client. Include in your program a list of primary muscles, both agonists and antagonists that you will be focusing on along with the main synergists (assistant muscles). List three to four specific exercises that you would suggest for this client.

Muscle imbalance is the inhibition of muscles that comes in due to mental, physical or chemical stressor and may lead to joint dysfunctions and other related imbalances that take time to be noticeable. The opposite arm and leg exercise is the most significant for phase one of the training program. The muscles that would be involved in this exercise are; trapezius, erector spinae, deltoids, gluteus maximus, quadriceps, and the hamstrings. The other exercises that can be recommended to the client are hamstring stretches, floor crunches and opposite arm and leg exercise. 9. For the following popular exercises state the primary joint action. For example, the elbow extends during the concentric phase of a triceps overhead extension. NOTE: you must know how to classify movements into the concentric (power) versus eccentric (preparatory) phase based on muscle action to do this assignment correctly. a. Shoulder joint. Lateral deltoid raise. Concentric phase. 1 point.

The shoulder joint is abducted during the concentric contraction of the anterior deltoid. b. Hip joint. Squat. Eccentric phase. 1 point.

The hip joint is contracted by the eccentric contraction of gluteus maximus among other muscles. c. Knee joint. Squat. Concentric phase. 1 point.

The knee joint is extended by the concentric contraction of rectus femoris among others. d. Elbow joint. Biceps curl. Eccentric phase. 1 point.

The elbow joint is contracted by the eccentric contraction of the biceps brachii among other muscles. e. Ankle joint. Gastrocnemius raise. Concentric phase. 1 point.

The concentric contraction of the gastrocnemius causes the plantar flexion of the ankle joint.

REFERENCE

McGinnis, P. M. (2005). Biomechanics of Sport and Exercise. Stanningley: Human Kinetics .