The Whys of Exercise

Written by Kelley Howe

For decades, medical professionals and health nuts alike have been preaching the importance of exercise. And they are right! Regular exercise is ESSENTIAL (necessary, crucial) for a healthy body. But what types of exercises are most important? And what are the benefits? And what is happening inside the body that produces so many benefits? Today we will answer all of these questions to discover why exercise is an indispensable part of a healthy life.

What are we talking about today? (EXERCISE)
Tell me one group of people that I mentioned that have been preaching about exercise? (MEDICAL PROFESSIONALS, HEALTH NUTS)
How would you describe someone that is a health nut?
To have a _____ exercise is essential. (HEALTHY BODY)
Tell me a synonym I used for essential. (NECESSARY, CRUCIAL)
OR Necessary and crucial are both synonyms for what word? (ESSENTIAL)

When we start talking about different types of exercise, a division can be made between AEROBIC and ANAEROBIC exercise. Aerobic exercise is only moderately intense but can be sustained for long periods of time. During aerobic exercise, oxygen is used to break down glucose and fats to produce the basic energy carrier for all cells, ADENOSINE TRIPHOSPHATE (ATP). The word aerobic literally means "with oxygen".

Which type of exercise can be sustained for a long period of time? (AEROBIC)
What word did I use to describe the intensity of aerobic exercise? (MODERATE)
What does the word aerobic mean? (WITH OXYGEN)
During aerobic exercise, oxygen breaks down two things. Tell me one of them. (GLUCOSE, FATS)
What is the basic energy carrier for all cells? (ADENOSINE TRIPHOSPHATE / ATP)
OR What is adenosine triphosphate?

The physical markers of aerobic exercise are a pounding heart and a slightly increased RESPIRATION (breathing) rate. If your body is warm and you are slightly

out of breath, your activity level is aerobic. Activities such as walking, jogging, swimming, and dancing would all fall into this category. We might also call this CARDIOVASCULAR exercise (or cardio) because the main objective is to increase cardiovascular strength and endurance. With better cardiovascular strength and endurance, we see benefits like:

- Improved condition of heart and breathing muscles
- Increased cardiac output
- Decreased resting heart rate
- Decreased body fat
- Decreased risk of developing heart disease or diabetes.

What is another name for this type of exercise? (CARDIOVASCULAR / CARDIO)
Respiration has to do with what body process? (BREATHING)

Or

What is one of the physical markers of aerobic exercise? (POUNDING HEART, INCREASED RESPIRATION RATE, INCREASED BREATHING RATE)

How would you know if the activity you are doing is aerobic?

What is an example of an aerobic activity that I mentioned? (WALKING, JOGGING, SWIMMING, DANCING)

Give me an example of an aerobic activity that I didn't mention.

What is one benefit of regular aerobic exercise? (see bullet list above)

What aerobic activity would you most like to participate in? Why?

To get the feel for aerobic activity, let's march around the room for two minutes.

Anaerobic exercises are much higher intensity but last for a very short amount of time. During anaerobic exercise, your muscles use the oxygen you're taking in faster than the body is able to REPLENISH it. This means that the muscles have to find an alternative source of energy. They find this new source of energy in stored substances like GLYCOGEN (stored carbohydrates), adenosine triphosphate (ATP), and CREATINE PHOSPHATE (CP).

How are anaerobic activities different than aerobic activities?

OR Aerobic exercises have a _____ intensity and last for a _____ amount of time. (HIGH) (SHORT)

In anaerobic exercise, what is using oxygen faster than your body can replenish it? (MUSCLES)

Tell me one alternative source of energy. (GLYCOGEN, ADENOSINE TRIPHOSPHATE, CREATINE PHOSPHATE)

Glycogen is stored what? (CARBOHYDRATES)

Name a food that is high in carbohydrates.

Activities such as weightlifting, sprinting and jumping all fall into the anaerobic category. Rather than building cardiovascular endurance, these exercises focus on building strength, power, and speed. With these objectives, the benefits of regular anaerobic exercise include:

- Increased muscle mass
- Increased metabolism
- Increased bone density

- Joint protection

What is one of the anaerobic activities I mentioned? (WEIGHTLIFTING, SPRINTING, JUMPING)
What is an example of an anaerobic activity I didn't mention?
Name one thing that anaerobic exercises build. (STRENGTH, POWER, SPEED)
OR Anaerobic exercises build power, speed, and what? (STRENGTH)
What is one benefit of regular anaerobic exercise? (see bullet list)
What aerobic activity is most appealing to you? Why?
With what you know about aerobic and anaerobic exercise, which type do you think is more important? Why?
To get a feel for anaerobic exercise, let's jump 5 times.

So, is it more important to build strength and speed or to have a strong, efficient heart? You can find experts in both camps but either style of exercise will ultimately help manage your weight and prevent disease. The exercise REGIMEN that will be most effective for you really comes down to your goals.

When we are thinking about exercise goals, there are ten FACETS (sides, aspects) of fitness that we need to consider. These areas are COORDINATION, agility, accuracy, balance, strength, endurance, cardiovascular health, flexibility, power, and speed. As humans, we would ideally be competent in all ten facets. By taking a look at our strengths and weaknesses within these ten areas, we can create an individualized exercise plan that is likely to involve both aerobic and anaerobic activities.

How many facets of fitness are there? (TEN)
What is a synonym of facet that I mentioned? (SIDE, ASPECT)
OR Side and _____ are both synonyms for facet. (ASPECT)
Name one facet of fitness. (ACCURACY, AGILITY, BALANCE, CARDIOVASCULAR HEALTH, COORDINATION, ENDURANCE, FLEXIBILITY, POWER, SPEED, STRENGTH)
Which aspects of fitness would be most important to a marathon runner?
What is one aspect of fitness that might be difficult for a marathon runner?
Which aspects of fitness would be most important to a professional football player?
What is one aspect of fitness that might be difficult for a professional football player?

Question Type Key
KNOWN – SEMI-OPEN – PRIOR KNOWLEDGE – MATH – OPEN - VAKT

What are two facets of fitness that you would like to work on? Why are these important to you?

We've talked a lot about why exercise is important for a healthy body, but it also has incredible benefits for your brain. Since 1990, researchers have gained a greater understanding of the connections in the brain, particularly how they grow and strengthen. It turns out, exercise greatly impacts the number and strength of those connections. This means that as you are moving, you are stimulating learning, building functional movement patterns, and inhibiting anxiety.

In addition to being good for your body, exercise is good for your what? (BRAIN)
What year did a greater understanding of connections in the brain begin? (1990)
OR How many years ago did a greater understanding of connections in the brain begin? (2019-1990 = 29 YEARS AGO)
Exercise impacts the number and strength of what in the brain? (CONNECTIONS)
Tell me one thing that you are doing for your brain if you are exercising. (STIMULATING LEARNING, BUILDING FUNCTIONAL MOTOR PATTERNS, INHIBITING ANXIETY)

As we exercise the process of NEUROGENESIS (the birth of new brain cells) begins. Now that we have all of these new brain cells, we need to connect them. It turns out that exercise also helps with that! A prominent protein, brain-derived NEUROTROPHIC factor or BDNF, is produced through exercise. You can think of BDNF as FERTILIZER for your brain. This protein leads directly to brain cells binding to one another and connections become more efficient. These connections are what allow us to take in and process information. The more connections we have, the better we are able to learn new information.

What is the process of creating new brain cells called? (NEUROGENESIS)
OR What is neurogenesis?
What prominent protein is produced through exercise? (BRAIN DERIVED NEUROTROPHIC FACTOR / BDNF)
What does BDNF do?
BDNF is like _____ for your brain. (FERTILIZER)

With more neural connections, we are better able to do what? (LEARN / LEARN NEW INFORMATION)

Neurogenesis and BDNF stimulate academic learning but they also play a significant role in learning new motor plans. As humans, we have only a few distinct movements that we use in everyday life. Sometimes these work together to create a more complex movement, but the components are the same: push, pull, squat, HINGE (bending at the hips), grip, and rotation.

Neurogenesis and BDNF help us learn academically and help us create new _____. (MOTOR PLANS)
What is one of the six basic human movements? (PUSH, PULL, SQUAT, HINGE, GRIP, ROTATION)
Tell me another. (PUSH, PULL, SQUAT, HINGE, GRIP, ROTATION)
Which of the six basic movements requires that you bend at the hips? (HINGE)

Activities like rowing or using a resistance band focus on the pull. It may seem MONOTONOUS (tedious, boring) while you are doing these exercises, but they translate directly into movements like opening a heavy door or lifting something off of a table. A squat becomes the movement needed to pick something up from the floor. Grip helps to ensure that you don't drop dishes on the way to the sink. By practicing these functional movements through exercise, we are creating new brain cells, fertilizing the connections between brain cells, and reinforcing functional neuropathways that offer us more control over our bodies.

What is an activity that I mentioned that uses a pulling motion? (ROWING, USING A RESISTANCE BAND)
What is another activity that would use a pulling motion?
What is something I mentioned that you might use a pulling motion to do in everyday life? (OPEN A HEAVY DOOR, LIFT SOMETHING OFF OF A TABLE)
Can you think of another everyday task that requires a pulling motion?
What word means tedious or boring? (MONOTONOUS)
OR Give me a synonym for monotonous. (TEDIOUS, BORING)
Which movement helps you pick something up off the floor? (SQUAT)
What everyday activity requires a push?

Question Type Key
KNOWN – SEMI-OPEN – PRIOR KNOWLEDGE – MATH – OPEN - VAKT

What everyday activity requires rotation?
Let's practice some of these movements.

- Sitting in your chair, push your arms out in front of you.
- Pull your arms back toward your body.
- Use your left hand to touch the right side of your chair.
- Use your right hand to touch the left side of your chair.

Our mental health also benefits from regular physical activity. On a basic level, exercise decreases the production of stress hormones, like NOREPHINEPHRINE (adrenaline) and CORTISOL, and boosts ENDORPHINS. This neurochemical change helps to produce feelings of relaxation and optimism.

Exercise decreases the production of what type of hormones? (STRESS / STRESS HORMONES)
What is one example of a stress hormone? (NOREPINEPHRINE, ADRENALINE, CORTISOL)
What does exercise boost? (ENDORPHINS)
How does the neurochemical change affect your mood?
OR What is one feeling produced by the neurochemical change? (RELAXATION, OPTIMISM)

On a deeper level, exercise can reroute your brain CIRCUITRY to avoid anxious thoughts. Actively engaging the SYMPATHETIC nervous system (the system responsible for initiating a fight or flight response) through exercise allows your brain to take action instead of passively waiting and worrying. When you respond with action, your brain sends information down a different path. As you practice this, the path becomes a well-worn groove and you have essentially created a detour around your anxiety. While exercise won't change anything immediately, the benefits of regular exercise can have a significant impact on your body and your brain.

Exercise can reroute your what? (BRAIN CIRCUITRY)
When the circuitry is rerouted, what can you avoid? (ANXIOUS THOUGHTS)
What system activates the fight or flight response? (SYMPATHETIC NERVOUS SYSTEM)

Question Type Key
KNOWN – SEMI-OPEN – PRIOR KNOWLEDGE – MATH – OPEN - VAKT

Creative Writing:

Is there one benefit of exercise that motivates you more than the others? What is it? Why?

What exercise goal would you set for yourself?

Kelley Howe is an S2C practitioner, occupational therapist, and owner of Adroit Therapy Services in Knoxville, Tennessee.

Resources:

https://www.sciencedaily.com/terms/aerobic_exercise.htm
https://www.emedicinehealth.com/aerobic_exercise/article_em.htm#what_is_aerobic_exercise
http://www.bodyomics.com/articles/how_anaerobic_exercise_works.html
https://oregon.providence.org/forms-and-information/a/ask-an-expert-the-benefits-of-aerobic-exercise/
https://www.piedmont.org/living-better/the-benefits-of-anaerobic-exercise
http://www.karenpostal.com/exercise-think-better
https://www.verywellmind.com/physical-exercise-for-panic-disorder-and-anxiety-2584094
https://www.health.harvard.edu/staying-healthy/exercising-to-relax
Spark by John J. Ratey, MD