

ART135

exercise technique series

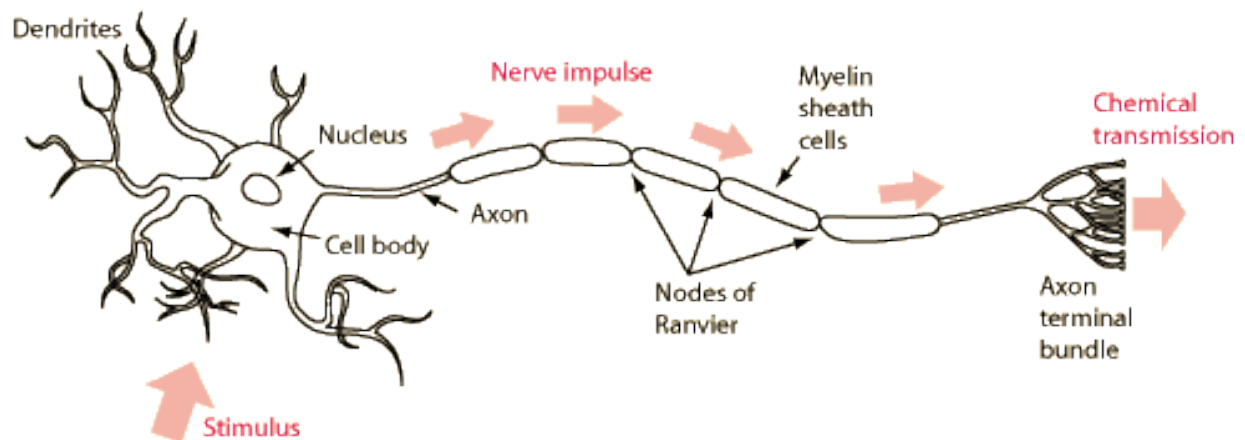
Neurobics: Exercise Your Brain

Written by Sharon Foy

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A NEUROBIC EXERCISE PROGRAM CONTAINS SCIENTIFICALLY BASED BRAIN EXERCISES that keeps it “in shape.” The exercises increase the brain’s ability to produce natural growth factors, which fight the effects of mental aging. Just like aerobic exercise brings oxygen to the brain, neurobics brings a beneficial chemical, neurotrophin, to the brain. The exercises increase mental alertness, keep the mind flexible, and increase the brain’s ability to remember. The term neurobics is credited to Lawrence Katz Ph.D., who was a leading neurobiological researcher from Duke Medical University in Durham, North Carolina; however, the research stems from leading laboratories around the world.



NEUROTROPHINS are a family of related polypeptide growth factors (proteins) and nerve growth factor (NGF) acting like “brain fertilizer.” The brain and spinal cord consist of many types of neurons (nerve cells) that send and receive electrochemical signals. Coated and insulated by myelin, the axon (transmitter) of the nerve is a long conducting fiber that takes impulses away from the nerve cell; the dendrite (receptor) brings impulses in. Aided by chemicals called neurotransmitters, electrical impulses cross a small gap called a synapse from the axon of one nerve cell to the dendrite of another. Researchers at Stanford University demonstrated that a complex network similar to telephone lines is wired by the brain and sends information to the entire body. At one time it was believed that the brain was a fixed network; to the contrary, new research suggests that the brain not only has the ability to grow new nerve cells but also has the

ability to create new pathways, strengthen existing ones, and increase in complexity.

THIS ABILITY OF THE BRAIN TO REORGANIZE ITSELF IS CALLED

NEUROPLASTICITY and continues throughout the life span, allowing neurons to adjust or compensate to new situations in the environment by forming new neural connections. By using the brain in different and unexpected ways, neurotrophin is produced, and it facilitates brain growth. Nevertheless, the “use it or lose it” principle also applies to brain function. Weak or unused circuits are eliminated in a process called synaptic pruning, and neurons without a purpose die in a process called apoptosis.

NEUROBIC EXERCISE IS NOT JUST FOR SENIORS OR PEOPLE WITH MEMORY LOSS OR ALZHEIMER’S PATIENTS.

It is for everyone because axial sprouting occurs at every age. Axons grow new nerve endings and connect with other nerve cells forming new neural pathways. The brain compensates by reorganizing these new connections, which can develop the ability to communicate with other parts of the brain.

OF COURSE THE BRAIN’S FUNCTION AND GROWTH is also influenced by other factors—performing adequate physical activity, obtaining sufficient sleep, eliminating stress, non-smoking, reducing cholesterol, and increasing foods with omega fatty acids. In addition, genetics plays a role in brain development.



A NEUROBIC EXERCISE IS MORE THAN LEARNING A NEW SKILL. It works by using all the senses and the emotions in a new way or by performing a mundane activity in a different way. The exercise centers around an “out of the box” type of thinking, which forces the brain to adapt to the unique occurrence and develop new neural connections or strengthen old ones. The exercise must be sufficiently different. For example, writing with the hand that is opposite to the dominant one is a simple neurobic activity, but just changing from pencil to pen while using the dominant hand is not. Other simple neurobic activities might include taking a new route home from work, driving home with the window down rather than listening to music, or walking a different path through the grocery store while noticing the smells of the items in the new aisle you pass. For an exercise to be neurobic, it must involve one or more of your senses or emotions in a new context, engage your full attention (at least briefly), and significantly break routine. They do not need to be complex just markedly different. Adding neurobics to an existing fitness class is deceptively simple, but has major effects on the

brain. The following neurobic exercises can be added to any existing fitness class.

SAMPLE NEUROBIC EXERCISES



BEGIN A STEP ON THE LEFT FOOT OR ARM INSTEAD OF THE RIGHT.

INSTRUCT THE CLASS TO CLOSE THEIR EYES DURING STATIONARY STRETCHES OR LIGHTWEIGHT EXERCISE.

SELECT A GENRE OF MUSIC NEVER USED IN CLASS BEFORE.

TEACH AN ENTIRE CLASS WITHOUT SPEAKING. USE ONLY GESTURES.

INSTRUCT YOUR CLASS TO ONLY COMMUNICATE VISUALLY—NO WORDS THE ENTIRE TIME.

DEVELOP A VISUALIZATION SCRIPT OF A JOURNEY OR PLEASANT PLACE. TELL IT BEFORE THE WARM-UP OR DURING STRETCHING.

MONITOR INTENSITY IN A DIFFERENT WAY THAN NORMAL (I.E. USE THE CHART INSTEAD OF TAKING PULSE ACCOMPANIED BY 6 or 10 SECONDS OF MUSIC; HOP ALTERNATING FEET WHILE TAKING PULSE RATES.

WALK IN COUNTERCLOCKWISE CIRCLES WHILE MONITORING PULSE.

AFTER CLASS, INSTRUCT STUDENTS TO FIND SNACKS YOU'VE HIDDEN WITH THEIR EYES CLOSED USING ONLY THEIR SENSE OF SMELL (BANANAS, PRETZELS, APPLES, GRAPES)

TEACH YOUR CLASS IN A TOTALLY DIFFERENT ROOM OR TEACH THE ENTIRE CLASS FACING A DIFFERENT WALL

BURN AN AROMATIC CANDLE DURING CLASS

WALK TO THE LIGHT WEIGHT STATION. CLOSE EYES. FIND THE PROPER WEIGHT BY FEEL ALONE.



Follow all fitness and safety guidelines when creating neurobic exercises especially ones with the eyes closed. Introduce one or two neurobic exercises per class and performing them for several classes or until they begin to feel habitual and then change to new ones.

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ART118 QUIZ

In the body of an email to askesaoffice@gmail.com, place your first and last name on the first line and number the page from 1 to 10. DO NOT SEND AS AN ATTACHMENT. Answer TRUE or FALSE to the accuracy of each of the 10 statement below based on the information in this ESA article. You will be emailed a CEC validation certificate of completion, which you must keep for your records. ESA cannot replace lost forms and the article would need to be resubmitted

- 1 - Neurobic exercises increase the brain's ability to produce natural growth factors, which fight the effects of mental aging.
- 2 - Neurobics brings a beneficial chemical, neurotrophin, to the brain.
- 3 - The term neurobics is credited to Lawrence Katz Ph.D., who was a leading neurobiological researcher from Duke Medical University in Durham, North Carolina; however, the research stems from leading laboratories around the world.
- 4 - The axon (receptor) of the nerve brings impulses in to the nerve.
- 5 - Currently, the brain is believed to be a fixed network and cannot grow new cells
- 6 - The ability of the brain to reorganize itself is called synaptic pruning.
- 7 - By using the brain in different and unexpected ways neurotrophin is produced, and it facilitates brain growth.
- 8 - Unused circuits are eliminated in a process called apoptosis.
- 9 - Genetics plays a role in brain development.

10 - Neurobics works by using all the senses and the emotions in a new way or by performing a mundane activity in a different way.