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Are You Exposed? Five Everyday Toxins Invading Your Brain

Food, water, air, and substances we come into contact with — at work and at home — contain harmful metals and chemicals that accumulate in the brain and nervous system. The Mind Health Report asked Eric Braverman, MD, an integrative physician with extensive experience in researching and treating the effects of toxins on the brain, to identify the worst toxins and shed light on ways we can reduce and even reverse damage from these dangerous toxins.

"I've found in my practice that 90 percent of Americans have elevated levels of lead and mercury," says Dr. Braverman. Three other key toxins that harm us, he says, are cadmium, aluminum, and chemicals in pesticides.

We can't completely evade these but we can reduce our exposure and use what Dr. Braverman calls "antidotes," specific nutrients and foods that protect our bodies and can reverse harmful effects. First, let's take a look at how the top five toxins damage the brain and what we can do to limit our exposure.

We know that pesticides can increase our risk for Alzheimer's disease and other types of dementia by approximately 40 percent, according to a 14-year study of more than 3,000 people in Utah who were 65 years old or older at the outset. Higher exposure poses higher risk, regardless of genetic risk for dementia.

Other studies show that pesticides increase risk for attention-deficit and hyperactivity disorders, suicidal thoughts, and Parkinson's disease. Pesticides incapacitate the nervous systems of the bugs they are designed to kill, so it isn't surprising

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that they also affect the human brain and nervous system.

Although industries such as commercial agriculture and landscaping may expose workers to high levels of these poisons, diet is the chief source of pesticides for most people. Eating organic food is the most obvious solution. Although it can be difficult to eat organic versions of all foods, avoiding those that are the top sources of toxins is much more practical.

The Environmental Working Group (EWG), a non-profit organization of scientists, compiled results of nearly 96,000 of tests of pesticide levels in produce purchased throughout the

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United States. The tests were performed by U.S. government scientists. Based on the research, the EWG created this list of the "dirty dozen" common fruits and vegetables with the highest levels of pesticides, in order, with the worst at the top of the list. They were: celery, peaches, strawberries, apples, blueberries, nectarines, bell peppers, spinach, kale, cherries, potatoes, and imported grapes.

By eating organic versions of these foods, we can potentially eliminate the majority of our pesticide intake from food. More information about food sources of pesticides is available at www.foodnews.org, an EWG web site dedicated to consumer education.

Symptoms of Metal Toxicity

Although they are far from the only toxins to which we are exposed, mercury, lead, cadmium, and aluminum are four chief sources of toxic metals exposure, according to Dr. Braverman.

Mercury and lead are related to almost every conceivable mental disorder, including depression, anxiety, aggression, memory problems, decreased attention span, difficulty concentrating, nervousness, reduced intelligence, insomnia, hallucinations, lack of coordination, and bad moods, as well as Alzheimer's disease or other types of dementia. Mercury can cause numbness, tremors, apathy, irritability, and slurred speech. Lead exposure also leads to dizziness and confusion and can reduce our sense of touch.

Aluminum interferes with memory and concentration, disturbs mood, and is linked to Alzheimer's and Parkinson's diseases. Cadmium can lower intelligence and cause anxiety and loss of the sense of smell.

Polluted air, tap water, cigarette smoke, and

cosmetics can contain one or more of the four "danger" metals. Using a reverse osmosis filter can remove most toxins from water. Food is another source, because contaminants are in soil and are taken up by plants. Tests have shown that organic versions contain much lower levels of toxic metals.

Individual metals also have some specific, common sources: Mercury is found in preservatives in vaccines and mercury vapors can leach out of older dental fillings, called "amalgam" fillings. Fish is our main dietary source of the metal, especially these bigger species: cod, halibut, mackerel, mahi-mahi, marlin, pike, sea bass, shark, swordfish and tuna. (Being large fish, they have more time to consume many smaller fish, increasing their load of mercury before being caught themselves.)

In older homes, lead and cadmium may leach from pipes and contaminate water. If lead-based paint has been used inside or outside a home, remodeling or repairs may release lead dust into the air, so precautions should be taken. Cadmium is found in linings of cans, fertilizers, and dandruff shampoos.

Cookware is a well-known source of aluminum, although its role in dementia is controversial. However, we know that aluminum is toxic to the brain, so it makes sense to use cast-iron or stainless-steel pots and pans. Aluminum is also found in processed foods, antiperspirants, antacids, and other medications.

Natural Antidotes to Toxins

We can reduce our exposure to toxins but we can't completely avoid them. Nutrients that limit internal damage are valuable tools to maintain brain health.

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CEO Christopher Ruddy Health Publisher Travis Davis Contributing Editor Vera Tweed Production/Art Director Elizabeth Dole

To contact **The Mind Health Report** send e-mail to: mindreport@newsmax.com. Subscription/Customer Service contact 1-800-485-4350 or mindhealth@newsmax.com. Send e-mail address changes to mindhealth@newsmax.com.

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Dr. Braverman recommends a combination of certain vitamins, minerals, and other nutrients as antidotes to brain toxins. The list below may seem very long but, in practice, many of these are available in combinations in some multivitamin and antioxidant formulas.

Rather than performing one isolated function, each nutrient has broader health benefits. The information below focuses on the role each one plays in protecting the brain and nervous system. Most multivitamins include at least some of these ingredients but often, in smaller amounts than those found to be effective against toxic damage.

Among Dr. Braverman's recommendations:

- Vitamin A helps with the removal of lead.
- Vitamin B1 (thiamin) reduces the amount of lead that gets absorbed and is essential for the normal production of energy from food. Taking 50 mg daily can enhance mental function. Most multivitamins contain less than 50 mg but since B vitamins work together in balance, it's best to take a B complex formula or get B1 in a multivitamin.
- Vitamin C helps to reduce pesticide damage to cells and to eliminate pesticides. With a daily dose of 1,000 mg, vitamin C may also counteract the effects of cadmium and lead and help to remove the metals. At the same time, cadmium can cause vitamin C depletion. Most multivitamins contain less than 1,000 mg of C.
- Vitamin E helps to detoxify pesticides and, with 600 IU daily of the d-alpha tocopherol succinate form, may reduce toxic effects of mercury, cadmium and lead. Some multivitamins contain this form of vitamin E.
- Calcium reduces the levels of mercury, cadmium, lead, and aluminum that stay in our bodies by competing with the metals for absorption.
- Magnesium reduces the toxic effects of mercury but the toxin can interfere with the function of the mineral. Magnesium also reduces the absorption of lead and aluminum and may help these to be eliminated. The typical American diet doesn't provide enough magnesium, yet the mineral is vital for overall health. Taking

- 200 mg to 400 mg of magnesium at bedtime, in addition to a multivitamin, can improve sleep and reduce stress.
- Selenium binds with mercury, cadmium, lead and aluminum so that these can be excreted. The process reduces amounts of selenium. Selenium may also prevent cadmium from damaging the prostate.
- Zinc helps to remove mercury and, by competing with cadmium, reduces its absorption. When zinc levels are low, we also absorb more lead and aluminum, but sufficient zinc reduces the toxic effects of all these metals.
- Copper absorption can be blocked by mercury. However, copper can help cadmium to be eliminated. Most multivitamins contain adequate amounts of copper.

Other helpful nutrients are sometimes found in multivitamin or other formulas and are available as individual supplements.

- Quercetin counteracts toxicity of mercury and prevents damage to kidneys from cadmium. It also helps to remove lead from the brain and reduces toxicity of the metal. It's sometimes included in cleansing formulas.
- Rutin, an antioxidant found in citrus fruits, binds with mercury and helps our bodies to excrete the metal.
- Lycopene, found in tomatoes, may protect kidneys from mercury damage and reduce the

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Eric Braverman



Eric Braverman, MD, is founder of PATH Medical in New York City. He began researching the harmful effects of toxins and nutritional antidotes in 1975. In his practice, he combines conventional medicine with his unique knowledge of the

workings of the brain to unravel the mysteries of aging and how disease in one area can affect the entire body. Dr. Braverman is the author of numerous scientific articles and texts for health practitioners and several popular books for the general public, such as The Edge Effect: Achieve Total Health. More at www.pathmed.com.

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By Dr. Daniel G. Amen



Natural Healing Power: Train Your Brain

Did you know that your brain is so powerful that it can take control of its own healing process? Or that your brain is capable of improving your energy, mood, attention span, sleeping patterns, and more . . . without medication?

An amazing natural therapy helps you train your brain so you can reduce symptoms associated with anxiety, depression, post-traumatic stress disorder, traumatic brain injury, autism, Asperger's, ADD/ADHD, some sleep disorders, headaches and more. What is this innovative and effective treatment tool?

It's called neurofeedback, and it is a noninvasive therapy that allows the brain to retrain itself to work at optimal levels. Here's how it worked for my daughter Breanne, who is the mother of my new grandson, Elias.

For quite some time, Breanne had been struggling with sleep and felt lethargic all the time. On average, it would take her about an hour-and-a-half to two hours to fall asleep. When she got up in the morning, she had no energy at all. She had tried over-the-counter sleeping pills, but nothing seemed to work.

After the birth of her son, the lack of sleep became particularly exhausting, and she couldn't keep up with her newborn. Breanne was desperate for a solution and decided to try neurofeedback. The process couldn't be simpler.

Twice a week, she met with our neurofeedback specialist. Then, with painless electrodes attached to her scalp, she sat in front of a computer screen and watched a video game. That's it.

After only 13 sessions of neurofeedback, Breanne was able to fall asleep within 15 minutes without the use of over-the-counter remedies or prescription sleep aids. In addition, she also experienced a much-needed increase in her energy levels. She felt like she could be a better mom to her new son because she wasn't so tired all the time.

Breanne also discovered that she had better focus and experienced fewer headaches, which she used to get on a daily basis. All this from sitting and watching a video game.

Breanne isn't alone. Neurofeedback has been used successfully with people of all ages — from toddlers to octogenarians — and has been shown to reduce symptoms of autism, ADD/ADHD, depression, anxiety,

bipolar disorder, migraines, sleep disorders, anger and frustration issues, memory loss, and severe brain injury.

Parents of some of our patients say that their kids are more cooperative, more focused, sleeping better, and able to reduce or even eliminate their medication. With neurofeedback, we have helped lots of people get off of medication for ADD, anxiety, and sleep.

Neurofeedback can also be used to enhance peak performance in sports. At the Amen Clinics, we have helped golfers and hockey players improve their game. For example, a 16-year-old with ADD who did neurofeedback to reduce his ADD symptoms got an unexpected bonus. "So what if I'm doing my homework twice as fast," he told us. "I'm more excited that my golf game has gotten so much better!"

The scientific community is starting to realize just how effective this treatment can be. For example, recent research in the journal Research in Autism Spectrum Disorders suggests that neurofeedback treatment has the potential to become an important and prominent intervention for children with autism spectrum disorders (ASD). arents of autistic children who participated in the study reported significant improvements in social interactions and communication skills following neurofeedback treatment.

Long-Term Results

Another new study in the European Journal of Neuroscience found that neurofeedback can establish long-term positive changes in neuroplasticity. This means it enhances the brain's ability to learn, adapt, and compensate for injuries.

Neurofeedback works by strengthening the brain waves that help you focus, stay alert, and be calm. One of the greatest advantages of this type of therapy is that the results can last a lifetime.

Daniel G. Amen, M.D., is a psychiatrist, brain-imaging specialist, and the CEO and medical director of Amen Clinics, Inc. (ACI) in Newport Beach and Fairfield, Calif.; Tacoma, Wash.; and Reston, Va. ACI has the world's largest database of functional brain scans related to psychiatric medicine and the clinics have seen patients from 75 countries. Dr. Amen is an assistant clinical professor of psychiatry and human behavior at the University of California, Irvine School of Medicine. He is the author of 22 books and wrote and produced two PBS specials.

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- toxic effects of cadmium. If you frequently eat tomatoes or tomato sauce, you may get sufficient amounts from food.
- Bifidobacteria and lactobacillus are "friendly" bacteria found in traditional yogurt. (The label should say the product contains "live cultures"). Also called "probiotics" (meaning "for life"), these bacteria support healthy digestion and may help with detoxification of mercury. Probiotics supplements often contain additional beneficial bacteria and are sometimes added to other supplements to enhance absorption of nutrients.

Top Antioxidants

Most often, these are found in antioxidant formulas or as individual supplements. One or more may be included in higher-end multivitamins, especially those sold through health practitioners.

- Alpha-lipoic acid inhibits mercury damage to neurons and cadmium damage to the liver. It may bind with mercury and cadmium and help with their removal. Alpha-lipoic acid may also reduce damage from lead by protecting cells in the brain and nervous system.
- NAC (n-acetyl cysteine) itself is not an antioxidant but a form of the amino acid cysteine. We use NAC to produce glutathione, a strong antioxidant made by every cell in the human body. NAC is a natural detoxifying agent that bonds with metals and other toxins so that these can be eliminated. It also reduces harmful effects of toxins. In the process, levels of the nutrient get depleted. In hospitals, NAC is often used intravenously to treat poisoning from acetaminophen, the pain reliever in Tylenol. NAC may also reduce toxic side effects of chemotherapy.
- Curcumin is a key ingredient in turmeric, the herb that gives curry its signature flavor and yellow color. Curcumin can protect against damage to the brain from lead. It's also an antioxidant and may protect against Alzheimer's disease.

Available as individual supplements, some of these

are found in cleansing formulas designed to help our bodies eliminate toxins and others may be in formulas to support brain health.

- Glutathione, a vital antioxidant produced in our bodies, can strengthen our defenses against toxins when taken as a supplement. It can help remove mercury, cadmium and lead.
- Methionine or l-methionine is an essential amino acid, meaning it cannot be made by our bodies but must be obtained from our diet. It supports our internal production of glutathione and can bind with mercury, cadmium, and lead to help us eliminate the metals. The detoxification process depletes our levels of methionine.
- Taurine or l-taurine is an amino acid that calms nerves. It can help to reduce mercury damage to the liver and reduce toxic effects of cadmium and lead. At the same time, mercury interferes with the normal action of taurine.
- Citrus pectin and alginates may reduce absorption of cadmium, lead, and aluminum in the digestive tract and help with their excretion. Each one is available as an individual supplement and some products combine the two.
- Vinpocetine, an ingredient found in the periwinkle plant, may help to remove lead. Some studies show that vinpocetine improves memory, especially in people with dementia, and reduces damage from strokes.
- Astaxanthin is a strong antioxidant that naturally gives wild salmon its pink color, as well as coloring pink flamingos, which eat similar foods in the wild. It may help to reduce mercury damage to kidneys. Farmed salmon are

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Mind Health Insights

An Easy Way to Boost Memory

A nutrient found in salmon and other fatty fish can make it easier to remember someone's name or where you left your keys, but it's difficult to get a memory-boosting amount of it from fish or fish oil. A new type of supplement, however, offers a different approach.

The memory-enhancing ingredient, docosahexaenoic acid (DHA), occurs naturally in certain types of algae. Fish eat the algae, absorb DHA, and then humans eat the fish, getting a somewhat diluted version of the nutrient. However, we can get a more concentrated form from algae in a supplement.

A study of 485 people age 55 and older found that taking 900 mg of DHA from algae improved memory and learning ability to a significant degree. Those in the study were not suffering from any type of dementia but were dissatisfied with their memory, which was impaired to a degree that is considered normal as part of the aging process.

In the study, published in Alzheimer's & Dementia: The Journal of the Alzheimer's Association, people who took the DHA for six months nearly doubled their improvement in learning and memory tests compared to those taking a placebo. The supplement, Algal-900, is available in drug stores.

Caffeine: A Surprising Upside

Caffeine can trigger jitters or other unpleasant symptoms for some people. However, most of us enjoy coffee or other caffeinated drinks, partially because they act as mild stimulants that help us start the day or perk up sagging energy levels. It turns out caffeine is actually good for us.

An international group of

scientists carried out a number of studies to explore the effects of caffeine on brain health and found that it has a number of benefits. Research results, published in the *Journal of Alzheimer's Disease*, show that caffeine prevents degeneration of brain function and can help to restore it.

Studies show that people who regularly drink caffeinated beverages experience better memory and overall mental function as they age and have less risk for Alzheimer's and Parkinson's diseases. For those who are already suffering from some degree of dementia, caffeine can help to relieve depression.

Animal studies show that the substance appears to protect cells in the brain and nervous system and reduce brain lesions associated with Alzheimer's. In the case of Parkinson's, in animal research caffeine helped to improve control of movement.

Tai Chi Does Reduce Stress

Tai chi, an ancient Chinese form of exercise, can reduce stress, anxiety, and depression and improve self-esteem for people of all ages, according to a study from Tufts University School of Medicine in Boston. Tai chi uses a series of slow movements that require mind-body coordination. It develops strength, flexibility, and balance, and it can reduce blood pressure and improve heart health and immune function.

Researchers from Tufts examined 40 studies of tai chi with more than 3,000 people from various countries, including the United States, United Kingdom, Australia, Germany, and China. Ages ranged from 16 to 85.

Stress relief and mood improvement occurred with any amount of tai chi, from a single session lasting between 30 minutes

and an hour to those who practiced for many years. Where depression improved, tai chi was practiced for at least six weeks, one to four times per week, and for anxiety relief, twice-weekly sessions were most helpful. Among people who suffered from rheumatoid arthritis or multiple sclerosis, exercise sessions improved physical function as well as mood. In children, tai chi reduced attention-deficit disorders. The study was published in *BMC Complementary and Alternative Medicine*.

Vitamin D Improves Mood

Lack of vitamin D increases risk of depression among older adults, according to a six-year study led by the National Institute on Aging. Researchers tracked nearly 1,000 healthy men and women age 65 or older, periodically measuring blood levels of vitamin D and testing for depressive symptoms. They found that the lower the levels of the vitamin, the higher the chances of depression. This connection was stronger among women than men.

More than two out of three Americans are deficient in vitamin D, according to Michael Holick, MD, Ph.D., an expert on the subject and author of *The Vitamin D Solution*. The vitamin is required by every cell in the body and adequate levels can improve memory and mood and help to relieve many chronic conditions, including high blood pressure, diabetes and arthritis.

When we go out in the sun, exposed skin produces vitamin D, even if we don't stay out long enough to get any color. However, the process becomes less effective as we get older. Taking supplements or eating foods fortified with the vitamin (milk, orange juice, and some cereals and baked goods), are practical options.

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given a manufactured version of the substance in their feed in order to please consumers. If they aren't, farmed salmon flesh is white. It's a matter of debate if artificial astaxanthin is worthwhile to eat or simply marketing.

Foods That Fight Toxins

Garlic is much more popular than algae and barley grass, yet these are all foods Dr. Braverman recommends to reduce brain damage and eliminate toxins.

Barley grass and the types of algae below are available in capsules and powders, alone or in "green" formulas. The powders can be mixed into juices or smoothies or added to other foods after cooking, as heat can destroy nutrients.

- Garlic can help to remove deposits of mercury, cadmium, lead and aluminum from our bodies and can quadruple the amount of mercury we excrete from our food. In addition to being a flavorful ingredient in many recipes, roasted garlic can be mixed into dips, salad dressings, or mayonnaise. As a supplement, garlic is available in tablets and odorless capsules.
- Barley grass helps to detoxify pesticides.
- **Kelp** is an algae that reduces absorption of cadmium and may help to remove other toxins.
- Chlorella and spirulina are two other types of algae that can help to remove and counteract the effects of mercury, lead, and other toxins.

Choosing Antidote Products

To understand how difficult it would be to get the correct combination of these nutrients, Mind Health Report looked at a variety of products that are reasonably priced and easy to find. While we do not endorse any specific product, we felt that it was helpful to identify some simple, practical ways to use these antidotes.

We found that vinpocetine, astaxanthin, citrus pectin, alginates, kelp, and barley grass are not likely to be found in multivitamins or other formulas that combine multiple antidotes

recommended by Dr. Braverman.

For the rest of the nutrients on the list, a combination of the first two products below incorporates the majority of the antidotes. As an option, adding the third, a cleansing formula, would provide several additional antidotes. All three products are available in health food stores, natural supermarkets or online.

Rainbow Light, Advanced Nutritional System, Multi + Daily Program: Six capsules daily provide vitamins A, B1 (22 mg), C (1,000 mg) and E (400 IU), quercetin, rutin, lycopene (as a tomato-paste concentrate), calcium, magnesium, selenium, zinc, copper, chlorella, spirulina, and lactobacillus.

Natural Factors, The Ultimate Antioxidant: Two capsules daily provide NAC, alpha-lipoic acid, curcumin, lycopene, additional vitamins (B1, C and E), and other antioxidants.

Enzymatic Therapy, Whole Body Cleansing Multivitamin: Two capsules daily provide methionine, glutathione, and taurine. Some other ingredients overlap with those in the Rainbow Light and Natural Factors products (vitamins A, B1, C and E, minerals and NAC) but in quantities that are complementary.

Chelation Treatment

If you suspect that your health may be suffering as a result of exposure to toxins, Dr. Braverman recommends chelation, a medical treatment that can help the human body to eliminate stored deposits of metals. In treatment, blood, hair or urine tests may be used to determine levels of stored toxic metals as well as exposure in everyday life.

Patients are given a prescription chelating agent, orally or intravenously, that binds with toxins and enables them to be eliminated. It's a much more intensive type of detoxification procedure than the action of some of the antidote nutrients.

Re-testing is used to monitor results. To find a qualified physician for chelation treatment, visit the American College for Advancement in Medicine (www.acam.org).

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Ask the Doctors

The Mind Health Report editors seek out top doctors across the nation to provide answers to your mind health concerns. Please include your full name, city, and state when submitting. If you have a question, please e-mail it to: mindreport@newsmax.com.

I was diagnosed with ocular migraine. I avoid caffeine, MSG, artificial sweeteners, and processed foods. I wonder what could have caused it and how I can prevent it in the future.

-Laura, Philadelphia, Pa.

Dr. Kent Holtorf responds: You're doing the right



thing. Some other common triggers of all types of migraines include alcohol, cheese, preservatives, perfume, too much or too little exercise, fatigue, and weather changes. As far as causes, hormonal

imbalances play a significant part in 70 percent to 80 percent of cases.

Fluctuations in estrogen and progesterone and low adrenal and thyroid function are common triggers that often go undiagnosed. To check, you need an integrative physician who is well trained in restoring hormonal balance. Check the directory at www. worldhealth.net or contact the National Academy of Hypothyroidism at www.nahypothyroidism.org for advice and help.

As a starting point, most people experience at least some relief from the following dietary supplements which, taken together, help regulate energy and stress: Between 1,500 mg and 2,000 mg of magnesium, 400 mg to 800 mg of CoQ10, 200 mg to 300 mg of riboflavin (vitamin B2, best taken in a B complex), and 1500 mg of fish oil per day. Too much magnesium can cause diarrhea but a chelated form is less likely to do so. I recommend starting with 200 mg daily and gradually increasing the amount.

Kent Holtorf, MD is an integrative physician who specializes in women's health and anti-aging. Dr. Holtorf is the Founder of the Holtorf Medical Group in California (www.holtorfmed.com)

and a reviewer and guest editor for several medical journals, including *Endocrine*.

I recently had surgery to remove a brain tumor near my right motor strip which has left a deficit in my left leg. Is there anything I can do to help my recovery? —Parks, Ocean Ridge, Fla.

Alison Lichy responds: We have a motor strip on each side of the brain, running from near the top of



the head to the ear area. The right motor strip controls movement on the left side of the body and vice versa. Injury can be caused by impact, a stroke or, as in your case, surgery.

Your leg muscles are still intact and have the ability to move but injury has reduced the brain's ability to direct them. The correct type of physical therapy can retrain your brain to control your muscles more effectively and restore function to your leg.

Research shows that, after being damaged, the brain can learn to use new pathways to perform a task, much like taking an alternative route to avoid a traffic jam or road construction; you still get to your destination, but in a different way. The correct type of physical therapy can help you find that alternative route and learn how to use it as a normal part of life.

For the greatest gains, the rehabilitation process should be started as soon as possible after any injury but improvement can always occur, even years later. You need to work with a physical therapist who specializes in treating brain injuries. To find one in your area, ask your neurologist or search at the web site of the American Physical Therapy Association site (www.moveforwardpt.com/findapt) by selecting "neurologic" for expertise.

Alison Lichy, PT, DPT is a board-certified specialist in Neurological Physical Therapy, a researcher, and a spokesperson for the American Physical Therapy Association. Lichy is in private practice in Alexandria, Virginia (www.neuropt.net) and consults nationally on the treatment of neurological disorders.

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