In patients with myasthenia gravis, the immune system attacks and damages the nerve signal receptors in the muscles, which interferes with the nerves’ ability to then contract the muscle, causing weakness and fatigue.

A drooping eyelid is the most frequent early sign of myasthenia gravis, a disease that produces extensive muscle weakness.

Myasthenia Gravis

Nerve Cell

Muscle

Neuromuscular connection

Destruction of neuromuscular connection (Myasthenia Gravis)
Thymus Thump
Activate your life energy

Gorillas, Tarzan and other People Thump their Chest to Get Energy

Thymus gland in fetus

Thymus gland in adult
AGING, some scientists say, is a process intimately linked to—and perhaps even caused by—gradual failure of the immunological defense system that fights invasion from the outside and subversion from within.

Research on the immune defenses' decline with age has focused new attention on a pinkish-gray two-lobed organ called the thymus gland. Mysteriously, the thymus begins its own decline when many organs are still growing. Does that early decline lead the way in an inexorable chain of events that weakens the defenses of the aging human body? Is it a key event in aging itself? And, if so, might replacement of some of the gland's products slow the process?

The gland, located high in the chest, is an essential component of the immune system, but it reaches greatest size at sexual maturity, about the age of 14, and begins to lose bulk and diminish in function long before the body's overall immunological processes become noticeably weakened.

The immune system has many vital functions. One of its components generates the antibodies and other protectors that defend against infections. Another acts like a cellular sentry, challenging all comers to distinguish friend from foe. In the body's terms, anything the immune system recognizes as "self" is friend. Anything foreign or abnormal, such as a malarial parasite or a cancer cell, is likely to be recognized as foe.

As a person ages, the defenses against infection become less vigorous and the immune system grows more and more likely to mistake friend for foe and attack the body's own cells and tissues. This mistaken attack on "self" produces what are called autoimmune diseases. Rheumatoid arthritis is commonly believed to be such a disorder, and some specialists suspect autoimmune processes are important factors in much of heart disease. Weakening of the immune system's surveillance against abnormal cells has been blamed for a rise in cancer risk with increasing age.
The thymus is a target of research on these issues because of its important and complex functions in the immune system. It processes a broad category of immunologically active white blood cells, called T cells or T-lymphocytes because they pass through the thymus and are modified there before coming to maturity. Thereafter many populations of T cells serve in a complex array of roles - killing invaders, enhancing some immune functions while suppressing others, helping antibody-producing cells recognize antibody targets. The thymus also makes at least four different hormones that have been discovered and purified in recent years.

By the age of 50, despite its importance to the immune defenses, only about 15 percent of the thymus remains. Furthermore, according to Dr. Marc E. Weksler of Cornell University Medical College, research of many kinds shows that the shrunken thymus is also greatly diminished in function.

He and other specialists on aging have asked what would happen if an aging person were given supplements of thymic hormones to replace or reinforce at least some of the gland’s important functions. With the support of the National Institute on Aging, Dr. Raymond Hiramoto of the University of Alabama medical school is giving the thymic hormones to animals to see what effect such supplements might have. But no answers are yet available.

Dr. Roy L. Walford of the University of California at Los Angeles has championed for more than a decade the idea that immunology is a key to the aging process. He notes that there is ample evidence that the immune system does decline with age. His work and that of others shows possible links between immunology and other current theories to account for the seemingly inevitable process of growing old.

One such theory, he said, links aging to a gradual loss of the cells' ability to repair damage to DNA (deoxyribonucleic acid), the master chemical of heredity.

Another theory blames the process on a buildup of damaging chemicals called free radicals, produced during the body’s continual use of oxygen.

According to Dr. Walford, the genes governing DNA repair and the chemicals that act as scavengers to remove free radicals all prove to be linked with a gene group called the major histocompatibility complex.

That complex was first discovered because it seemed to govern the individuality of a person's tissues. Scientists have become able to define individual tissue types in a manner
analogous to blood typing. Tissue typing, based on immunological distinctions between tissues of different individuals, has proved indispensable in organ transplants.

Dr. Walford and his colleagues have demonstrated that among mice maximum life span varies between strains depending only on which major histocompatibility complex the animal has inherited.

Dr. Walford and Dr. Kathleen Hall of U.C.L.A. demonstrated that genetic traits governing the effectiveness of an animal's ability to repair DNA was also linked, through the histocompatibility complex, to the genetic controls over the immunological system. With Dr. Richard H. Weindruch, Dr. Walford showed that sharp restrictions on an animal's food intake early in life could prolong life expectancy.

In cold-blooded animals, such as fish, a reduction in temperature during the second half of the life span has also been found to increase longevity. Both the food restriction in young mammals and the temperature reduction in fish also seemed to have beneficial effects on their immune systems.

More than 10 years ago, Dr. Walford suggested as one among several possibilities that the shrinking of the thymus gland might be a key to the aging process.

Experiments in which animals had their thymus glands removed and then received thymus transplants from younger or older animals demonstrated that an old thymus does not function as well as a young thymus.

Some scientists today debate whether the weakening of the immune system is the main underlying cause of aging, or just one of many complex factors involved, or simply an important contributor to the diseases that often impair life for the aging person.

Dr. Weksler noted recently that great variability is one of the most obvious characteristics of the aging process in humans. It seems likely, he said, that immunological decline is only one among many related factors that make up the process of aging. But he believes that more thorough understanding of the immune system may make it possible to deal more effectively with the diseases that come in later years.

The decline of the thymus can be linked with many of the deficiencies of the immune system that as a person ages, Dr. Weksler has written. But he said any hypothesis viewing these changes as consequences of changes in the thymus must remain "quite tentative."
Many of the changes of aging are difficult to explain through immunology alone. A Veterans Administration study in Boston found that a man's head circumference increases by one-eighth of an inch every five years; that ear and nose size increase slightly because of increasing amounts of cartilage, but that height decreases at the rate of threesixteenths of an inch every five years in men during their 50’s and 60’s.

It has been known for years that the lens of the eye loses water and becomes more rigid with age. For that reason many middle-aged and elderly people need corrective glasses.

The wall of the heart's left ventricle, its main pumping chamber, becomes thicker but less powerful. All these changes, some of known cause, others still baffling, testify to the complexity of the process of aging. "I personally think that aging is not due to any single mechanism," said Dr. Edward Schneider of the National Institutes of Health.

He agrees that the immune system does decline, sometimes dramatically, with age, but sees this as one of many results of an extremely complex process.

In recent years some experts have estimated that the maximum human life span is roughly 85 years, give or take a few years. In fact, despite claims that people have lived to be 150 or more, the longest thoroughly authenticated human lifetime was that of a Japanese who lived to be 114, according to that country's public health records.

Dr. Schneider, associate director for biomedical research and clinical medicine of the National Institute on Aging, is not entirely convinced that humans have an immutable, finite life span. In fact, he said, it may be that the human life span is being increased now, through improvements in public health, nutrition, sanitation and some of the other beneficial attributes of modern society.

Myasthenia Gravis
What is myasthenia gravis?
Myasthenia gravis is an autoimmune disease marked by muscle weakness and fatigue that worsens during activity and improves with rest. The symptoms are activated when the immune system produces antibodies that interfere with the transmission of nerve signals to skeletal (voluntary) muscle. As a result, the affected muscles cannot contract normally. The disease is rare, occurring in one or two people per 10,000. It most commonly affects women under 40 and men over 60 but can occur at any age, even among children. Although prognosis has been poor in the past, current therapies can typically allow one to maintain a relatively normal quality of life. Some cases may even go into remission.

What are the symptoms?
In most cases, the first noticeable symptoms involve weakness of the eye muscles and include a drooping of one or both eyelids, known as ptosis. This is often accompanied by blurred or double vision as the muscles that control eye movements fatigue over time or with repeated use. In others cases, difficulty in swallowing and slurred speech may be the first signs. When it affects the limbs, myasthenia gravis can manifest as an unstable or waddling gait, weakness in arms, hands, fingers, or legs. It can cause drooping of the head and neck, a change in facial expression, difficulty in swallowing and shortness of breath or impaired speech (dysarthria).

Although it affects the whole body, there is wide variation among patients regarding the visible degree of muscle weakness involved. It can range from a localized form that is limited exclusively to the muscle of the eye (ocular myasthenia) to a more generalized and severe form that affects even the muscles controlling breathing. When this occurs - a situation known as myasthenic crisis - respiratory muscles weaken to the point where ventilation is unsustainable and requires emergent assistance with a respirator. In these patients, myasthenic crises can be triggered by anything that causes respiratory muscles to overwork and become fatigued, such as a respiratory infection (typically involving spasmodic coughing), fever, asthmatic attacks or adverse reactions to medications.

Symptoms can come on insidiously, and since weakness is a common problem of many disorders, the diagnosis can often be delayed or missed. The hallmark feature that distinguishes myasthenia from other neurologic conditions is weakness without a change in sensation. If your doctor does suspect myasthenia, there are several tests available to confirm the diagnosis.

What are the causes?
Myasthenia gravis is caused by a disruption in the transmission of nerve impulses to muscles. Normal communication between muscles and nerves occurs at the neuromuscular junction (NMJ) - the place where nerve cells connect with the muscles they control. During voluntary movement, an impulse travels down a nerve, and the nerve endings release a neurotransmitter called acetylcholine. Acetylcholine travels through the space that is the NMJ and binds to acetylcholine receptors at special sites within the muscle tissue membrane called motor end plates. When a nerve activates the end plate, an electrical impulse propagates through the muscle and generates a muscle contraction.

In myasthenia gravis, antibodies block, alter, or destroy acetylcholine receptors at the NMJ, thereby altering communication between muscle and brain, and preventing muscle contractions. It's believed that the thymus gland, a part of the immune system located in the upper chest behind the sternum, may be centrally involved in triggering or maintaining the production of these abnormal antibodies. The thymus is a key player in the development of the immune system and is especially active in childhood. It is typically large in infancy, grows gradually until puberty and then shrinks in size until by adulthood, it is relatively small. However, a large percentage of individuals with myasthenia have abnormally large thymus glands, whose tissue reveals signs of lymphoid hyperplasia - the same reaction that causes lymph nodes and the spleen to enlarge. Some people with myasthenia also have tumors of the thymus, called thymomas, and about half of these tumors are malignant. Although the exact relationship between the thymus gland and myasthenia is still uncertain, the thymus does contain receptors for acetylcholine, and it is thought that the gland may be giving incorrect instructions to developing immune cells, causing them to produce antibodies that attack their own body's tissue, particularly skeletal muscle.

Because myasthenia is an autoimmune disorder, certain factors that can make it worse include undo stress on the body, worsening fatigue, illness, extreme changes in temperature and some medications - such as beta blockers, calcium channel blockers, quinine and some antibiotics.

What is the conventional treatment?
Doctors use a variety of treatments, alone or in combination, to relieve symptoms of myasthenia gravis. Medications used for overcoming muscle weakness either block the breakdown of acetylcholine at the NMJ or try to suppress the immune system and reduce antibody production. Anticholinesterase agents like pyridostigmine (Mestinon) help improve neuromuscular transmission and increase muscle strength. They enhance communication between muscles
and nerves, and although they do not cure the underlying problem, they do improve muscle contraction. Immunosuppressive drugs include corticosteroids like prednisone, and other agents like cyclosporine (Sandimmune) and azathioprine (Imuran). These medications suppress the production of abnormal antibodies, which improves muscle function as a direct result of acetylcholine no longer being interfered with. Prolonged use of these kinds of medications can produce serious side effects such as bone thinning, weight gain, diabetes, increased risk of infection, an increase and redistribution of body fat, infertility, decreased white blood cell counts, and an increased risk for certain kinds of cancer. They should be used only under proper medical guidance.

Other therapies used to treat myasthenia gravis when drug therapy is ineffective include a procedure called plasmapheresis, in which abnormal antibodies are removed from the blood through a filtering process similar to dialysis. Unfortunately, the beneficial effects usually last only a few weeks. Another therapy involves using high-dose intravenous immune globulin, which temporarily modifies the immune system and provides the body with normal antibodies from donated blood. It has a lower risk of side effects than does plasmapheresis or immune-suppressing therapy, but can take a week or two to start working and the benefits usually last less than a month or two. These therapies are often used in severe cases to help individuals during especially difficult periods of weakness.

In the 15 percent of people with myasthenia gravis who have a thymoma, the tumor needs to be removed due to its potential transformation into a malignancy. Thymectomy, the surgical removal of the thymus gland, can reduce symptoms in those individuals with or without thymomas.

For people with myasthenia gravis who don't have a tumor in the thymus, but have an abnormally enlarged gland, it's unclear whether the potential benefit of removing the thymus outweighs the risks of surgery. Some research claims that thymectomy reduces symptoms in more than 70 percent of patients who do not have thymomas and may lead to complete remission in certain individuals. However, this is still a controversial issue that is being debated in the medical literature. Most surgeons will not recommend surgery when symptoms are mild and well controlled.

What therapies does Dr. Weil recommend for myasthenia gravis?
Dr. Weil recommends the following dietary changes for myasthenia gravis and all other autoimmune diseases:

- Reduce protein intake to 10 percent of total calories; replace animal protein as much as possible with plant protein.
- Eliminate milk and milk products (substitute other calcium sources).
- Eat more fruits and vegetables (make sure that they are organically grown).
- Eliminate polyunsaturated vegetable oils, margarine, vegetable shortening, all partially hydrogenated oils, and all foods (such as deep-fried foods) that might contain trans-fatty acids. Use extra-virgin olive oil as your main fat.
- Increase your intake of omega-3 fatty acids.
- Eat plenty of foods high in potassium, such as oranges, tomatoes, apricots and their juices, bananas and broccoli.

The following supplements are also recommended:

- Take ginger (start with one capsule twice a day). Turmeric can also be helpful.
- Dr. Weil’s antioxidant cocktail and multivitamin-mineral recommendations - see anti-inflammatory diet.

Because autoimmune diseases tend to flare up in response to emotional ups and downs, Dr. Weil encourages trying some form of mind/body treatment - hypnosis may be especially helpful. Psychotherapy, biofeedback, and guided imagery are also good options. You might also try consulting a practitioner of homeopathy or Chinese medicine to explore the contributors to flare ups and the underlying problem.
The Causes and Treatment of Progressive Paralytic Diseases of the Nervous System Plus M.E. - Myalgic Encephalomyelitis/Chronic Fatigue

Includes: M.S.-multiple sclerosis, Motor Neuron diseases including ALS.

For companion article see Auto-Immune disorders click here

(1) Definitions of different types Progressive Paralytic Diseases of the Nervous system

(a) Myasthenia gravis

This literally means “serious muscle-weakness”; from Greek “muscle”, “weakness”, and Latin gravis “serious”; abbreviated MG is a neuromuscular disease leading to fluctuating muscle weakness and fatigability. It is an auto-immune disorder, in which weakness is caused by circulating antibodies that block acetylcholine receptors at the post-synaptic neuromuscular junction, inhibiting the stimulative effect of the neurotransmitter acetylcholine. At 200–400 cases per million it is one of the less common auto-immune disorders.

The essential point to bear in mind is that all these diseases, no matter how we classify them have causes in common. They are all auto-immune disorders, and some may also be mitochondrial disorders. There is enough in common with all these auto-immune degenerative nerve disorders to discuss the common causes and by implication and through experience, the treatment.

(b) The motor neuron diseases (MND)

These are a group of progressive neurological disorders that destroy motor neurons, the cells that control voluntary muscle activity including speaking, walking, breathing, swallowing and general movement of the body. The Motor Neuron diseases include ALS-Amyotrophic lateral Sclerosis, PLS-primary lateral sclerosis, PMA-progressive muscular atrophy, pseudobulbar palsy, progressive bulbar palsy and Spinal muscular atrophy.

Symptoms usually present themselves between the ages of 50-70, and include progressive weakness, muscle wasting, and muscle fasciculations; spasticity or stiffness in the arms and legs; and overactive tendon reflexes. Patients may present with symptoms as diverse as a dragging foot, unilateral muscle wasting in the hands, or slurred speech.

Neurological examination presents specific signs associated with upper and lower motor neuron degeneration. Signs of upper motor neuron damage include spasticity, brisk reflexes and the Babinski sign. Signs of lower motor neurone damage include weakness and muscle atrophy.
Note that every muscle group in the body requires both upper and lower motor neuron's to function. The signs described above can occur in any muscle group, including the arms, legs, torso, and bulbar region.

The symptoms described above may resemble a number of other rare diseases, known as "MND Mimic Disorders". These include, but are not limited to multi-focal motor neuropathy, Kennedy's disease, hereditary spastic paraplegia, spinal muscular atrophy and monomelic amyotrophy. A small subset of familial MND cases occur in children, such as "juvenile ALS", Madras syndrome, and individuals who have inherited the ALS2 gene. However, these are not typically referred to as MND, but by their specific names:

(c) MS (multiple sclerosis)

Multiple sclerosis (abbreviated MS, also known as disseminated sclerosis or encephalomyelitis disseminata) is an auto-immune condition in which the immune system attacks the central nervous system, leading to demyelination. Disease onset usually occurs in young adults, and it is more common in women. It has a prevalence that ranges between 2 and 150 per 100,000. MS was first described in 1868 by Jean-Martin Charcot.

MS affects the areas of the brain and spinal cord known as the white matter, destroying a fatty layer called the myelin sheath, which wraps around nerve fibers and electrically insulates them. When myelin is lost, the axons of neurons can no longer effectively conduct action potentials. The name multiple sclerosis refers to the scars (scleroses – better known as plaques or lesions) in the white matter. Although much is known about the mechanisms involved in the disease process, the cause remains unknown. Theories include genetics or infections. Different environmental risk factors have also been found.

Almost any neurological symptom can appear with the disease, and often progresses to physical and cognitive disability. MS takes several forms, with new symptoms occurring either in discrete attacks (relapsing forms) or slowly accumulating over time (progressive forms). Between attacks, symptoms may go away completely, but permanent neurological problems often occur, especially as the disease advances.

There are several types of Multiple Sclerosis (MS). Most will only vary in the degree or extent it affects the Central Nervous System (CNS). The most frequent type of MS is Relapsing MS. People with Relapsing MS will experience periods of relapses followed by complete or partial recoveries. This type of MS affects 85% of all MS patients. 50% of these patients will eventually experience progressive MS with or without periods of recovery. There are other types of more aggressive, progressive MS which affects the other 15% of the MS patients.

Myelin helps nerve cells conduct electrical impulses and operate properly. The damage to the myelin causes the CNS to operate improperly and thus, the various MS symptoms, which include bladder and bowel dysfunction, cognitive dysfunction, vision problems, fatigue, walking difficulty, pain, numbness, dizziness, swallowing disorders, tremors and other symptoms.

(d) M.E. Myalgic Encephalomyelitis/Chronic Fatigue

Whilst this condition is not strictly a Paralytic Disease of the nervous system, it's causes and treatment indications are very close, if not identical to the Paralytic Diseases of the nervous system, therefore it has been included in this article.

M.E. Is an auto-immune disorder and as is discussed below, has all the causative factors associated with the paralytic diseases of the nervous system, such as infection (typically Candida but also others such as epstein-Bar, glandular fever) heavy metal and or pesticide retention, mitochondrial dysfunction especially, vitamin D deficiency
and so on as discussed below. It certainly involves the nervous system and specifically the brain, as well as the immune and circulatory systems. There is additional aspect that has been discovered with M.E and also with more minor chronic fatigue that involves low blood pressure. This is especially noticeable as postural hypo-tension, i.e. if the person suddenly gets up from a sitting or lying position, there is often faintness or dizziness experienced this is due to inherent low blood pressure. This has been found to be at least partly due to insufficient salt (see Celtic salt also ionic minerals and trace elements and MagSea Ionics). In some cases this may be partly due to a low salt diet, it has been found that the adrenal glands in conjunction with hypothalamus in the base of the brain, do not do their job properly in regulating the amount of salt excreted by the kidneys, and too much is lost to the urine. In this case supplementing with Celtic salt and or Ionic minerals or MagSea Ionics is suggested and supporting the adrenals with liquorice can specifically help retention of sodium.

Raising the blood pressure to nearer normal will give more energy and reduce some of the fatigue symptoms. Persons in this situation will need a home blood pressure monitor and to experiment with the salts suggested to find the best dose for them. As can be seen from our general suggestions in the companion article, (For companion article see Auto-Immune disorders click here) the consumption of the correct type of unrefined salt is a normal basic recommendation for well-being in virtually all types of health disorders (Including high blood pressure !)

Symptoms of CFS include widespread muscle and joint pain, cognitive difficulties, chronic, often severe mental and physical exhaustion and other characteristic symptoms in a previously healthy and active person. Fatigue is a common symptom in many illnesses, but CFS is a multi-systemic disease and is relatively rare by comparison. Diagnosis requires a number of features, the most common being severe mental and physical exhaustion which is "unrelieved by rest," is worsened by exertion, and is present for at least six months. All diagnostic criteria require that the symptoms must not be caused by other medical conditions. CFS patients may report additional symptoms, including muscle weakness, cognitive dysfunction, hypersensitivity, orthostatic intolerance, digestive disturbances, depression, poor immune response, and cardiac and respiratory problems. It is unclear if these symptoms represent co-morbid conditions or are produced by an underlying etiology of CFS.

Also it is generally understood by Immunologists that the destructive aspect of a deranged immune system where an aspect of the immune system attacks parts of the persons body, in the case of these diseases various parts of the nerves, or nerve sheaf's, nerve cells and brain cells are involved. The genetic and constitutional variations of each person are sufficient to explain why basically the same disease process will attack different parts of the nervous system, resulting in different named diseases each with it's own classic set of symptoms.

(2) Basic causes of Auto-immune disorders with an emphasis on the Progressive Paralytic Diseases of the Nervous system Plus M.E. (Myalgic Encephalomyelitis/Chronic Fatigue)

The following causes will vary in significance between individuals and possibly the type of disorder. However as all the suggested treatments are non-toxic and have broad-acting nutrient effects...all the listed nutrients and herbs can be systematically/incrementally introduced as a treatment program to suit the individual. (Except with Liquorice, in very rare cases of exceptionally high blood pressure-not ordinary high BP and pregnancy).

(a) Auto-immune attack.

This factor is always present and is usually connected with the other causes, e.g. mercury and pesticide toxicity and Candida infection can keep the immune system in a state of imbalance, producing auto-immune reactions. There are however, herbs that can insignificantly turn off the auto-immune destructive reactions that maintain the disease. These herbs include Liquorice and Kallawala(Polypodium leucotomos). Also, colloidal silver (used to fight the infections) has some immune regulatory and healing effect.
(b) Heavy metal and pesticide toxicity

also any neurotoxins the person may have had exposure to in the past. These can be eliminated in a few weeks or months using nutritional combinations such as Deep Cell Detox (DCD).

Note: If you do not take a course of Deep Cell Detox, it is suggested that one of the ingredients, Alpha Lipoic Acid, be used as part of your regime. A totally natural and unique antioxidant, ALA is both water & fat soluble, so acts both inside and outside your cells neutralising and flushing out of the body the worst types of free radicals (a major cause of degenerative disease & cellular aging). As it deactivates both water and fat soluble free radicals, both lipoproteins and membranes are protected - no other anti-oxidant is known to do this. ALA, is able to penetrate into the nerve cells to help restore normal functioning. However if you do have heavy metals in the cells then the addition of Sea Greens, as contained in Deep cell detox is a wise precaution, as this removes toxins and heavy metals from the body via the gut, otherwise they are re-circulated back into the blood and again into the cells.

Most persons, especially the chronically ill have absorbed, over their lifetime, sufficient heavy metals and other toxins to contribute or even to be the actual 'final straw that broke the camels back' that lead to the disease. Most common sources of acquiring heavy metals for example is via dental fillings containing mercury. It has been and shamefully is, still the common practice in many countries (some countries have now banned them) to be given fillings with mercury as the major component, unless you specifically request non-mercury fillings. The mercury amalgam fillings slowly gas off mercury for their entire life in the mouth and much of this is directly absorbed into the brain. Another shameful source of the extremely toxic mercury is via injections, such as flu injections ("I never felt right since my flu injection" is a common experience) and even worse into young children and babies as vaccinations.

The destructive aspects of the mercury absorbed could take years to manifest into a recognizable clinical disorder, such as MS, or could precipitate quite rapidly in susceptible children, autism. I ask myself why this shameful practice continues when there is massive scientific data to demonstrate the dangers of chronic mercury poisoning. It is ostensibly used as a preservative in vaccinations, yet there are many safer preservatives available. Are they deliberately trying to kill us? Or is it, that to admit liability would bankrupt pharmaceutical giants and governments along with them, in medical negligence claims?

Another common example of a chronic poison precipitating chronic disease including chronic fatigue and Progressive Paralytic Diseases of the Nervous system is organo-phosphates. These are regularly sprayed onto crops (And is also used in household sprays for killing parasites e.g. fleas) If you live or have lived in a crop spraying region for any length of time then your exposure could be high. Organo-phosphates are proven neuro-toxins. For persons with a poor ability to eliminate these, they can build up in the tissues and at some point, possibly years later contribute to all sort of diseases of the nervous and immune systems.

Also: See our online article about Heavy Metal Detoxification

For further information on this important subject see the article: Health hazards of heavy metals click here

(c) Infections.

This often includes Candida Albicans fungal infection (usually induced by anti-biotics killing the beneficial bacteria in the gut and or low immune system plus poor dietary choices/lifestyle etc. Other infections can also be relevant both known and unknown e.g. Mycoplasma. All types of infections can be eliminated with non-toxic remedies that do not kill beneficial bacteria such as Colloidal Silver.
Alka-Vita
This has the tremendous advantage that it alkalises, therefore increases oxygenation, counteracts free radical attack and damage and therefore undermines the basis of disease. It is also directly 'anti-septic' against fungal infections, including Candida and possibly all harmful micro-organisms and parasites, although there is not enough information on this, we do know that all anaerobic infections (All the harmful ones) are attacked by free electrons that Alka-vita supplies and are eventually destroyed or severely limited by an alkaline environment. Alka-Vita is also a cost effective form of treatment.

Colloidal Silver:
Eliminates infections of various types, known and unknown that contribute to auto-immune disorders. Eliminating chronic infections is essential to achieve freedom or at least amelioration from your auto-immune disorder. Colloidal silver will, if used over a sufficient period of time wipe most chronic infections that go along with virtually all cases of auto-immune disorders. It also has its own calming effect on auto-immune reactions.

Colloidal Silver comes as a water based spray, and by spraying in the mouth every hour or so, the need to purchase large amounts is eliminated.

To help strengthen the correct side of the immune system, help cell oxygenation (by normalising mitochondria) and provide broad-spectrum nutritional support, in turn helping to prevent the return of the chronic infections, we recommend (live cell) Immunocomplex, for full article click here. See also, the Article concerning Mycoplasma Infections and their link to chronic disease.

(d) Vitamin B12 Deficiency for full article click here

This vitamin can often be deficient due to absorption and assimilation issues as well as dietary ones. It is discussed in detail in the article Vitamin B12. Not only does B12 act on the neurons themselves, the symptom picture of B12 deficiency also corresponds closely with MS symptoms, so its experimental use would seem sensible across the range of neuro-degenerative disorders discussed in this article.

Example: Multiple sclerosis Symptoms of MS have been noted in persons with a vitamin B12 deficiency prior to evidence of megaloblastic anemia. There is a remarkable epidemiologic similarity between MS and pernicious anemia, and similar HLA (human lymphocyte antigens) are suggested for the association of the two conditions.

High dose vitamin B12, in a form that crosses the blood brain barrier easily is recommended i.e. methylcolbalamin. This is non toxic and is available as a sublingual lozenge, so that intravenous injections are not required.

(e) Magnesium Deficiency.

Whilst not strictly a cause, it's deficiency being widespread, it is such an important nutrient overall and especially important for nervous system functioning, it's use in these disorders is a sensible contingency to optimise the chance of the most rapid recovery. Not only does it improve functioning of the nervous system but can help mitigate the presence of neuro-toxins like heavy metals etc. High dose skin application of magnesium chloride liquid (MagSea Pure) is available. for full article click here. By using MagSea Ionics liquid, added to water we can more gradually resolve magnesium deficiency and also supply a full range of Ionic mineral and trace-element salts.

(f) Mitochondrial malfunction.
Every cell in the body has little mini-cells inside, these are responsible for the overall cell respiration and the release of energy via the ATP cycle. The Mitochondria are easily damaged by other factors already mentioned, such as virus, heavy metals and pesticides. This results in lowered cell respiration a drop in the available energy in every organ and system in the body, including the immune system. The mitochondria can easily be returned to proper functioning by supply the correct mixture of respiratory - chain enzymes. These are produced by live nutritional yeasts bred in a high oxygen environment and are available in products Zell Oxygen and Live cell Immunocomplex. This aspect of pathology has been specifically identified in Parkinson's disease, but it is likely present in all degenerative disorders to a greater or lesser degree.

(g) Vitamin D Deficiency

Vitamin D is essential to aid the immune system and many biochemical processes including the utilisation of calcium and magnesium. Its deficiency is almost universal in northern climates and even more so since the introduction of sunscreen. Its deficiency has been linked strongly to auto-immune diseases. Furthermore the dose recommendations in the past were grossly under-estimated. At least 2000IU a day is recommended. Introducing this will have a general calming, strengthening and healing effect allowing any other remedies to work more completely For article click here.

Vitamin D Safety Issues

In the past there were reports of toxicity of higher doses. Further investigation has found that most or all of these where for Vitamin D2, ergocalciferol. Vitamin D3 or cholecalciferol is the form natural to the body. And is not toxic, in doses below 10,000 I.U. daily.

In very rare cases persons can be hypersensitive to Vitamin D, and is usually confined to persons with such conditions are sarcoidosis, oat cell carcinoma of the lung, and non-Hodgkin's lymphoma, although other illness, such as primary hyperparathyroidism, can cause the syndrome. Periodic measurements of 25(OH)D levels and serum calcium will alert the physician to the need to do more tests, such as 1,25(OH)2D3 or PTH. For full details of safety, dose and therapeutic potential see full product information click here

(H) Essential fatty acid deficiency of raw oils

This is also a factor in the development of any disease and raw fatty acids also help to integrate sunlight (Helps to prevent burning, along with other nutrients such as anti-oxidants, and bring the sun energy in the form of ‘biological electrons’ into the cells) A good source of essential fatty acids is raw nuts and seeds, including sunflower seeds, pumpkin seeds, walnuts and almonds.

An easy way to introduce these into the diet is to grind to a powder in electric grinder and keep in tightly sealed jar for up to a weeks supply. Add about 2 heaped dessertspoons daily to food (do not cook) This can include, sunflower seeds, pumpkin seeds, walnuts and almonds, although Nuts purchased as raw may have been heat treated; One can use a raw, unheated oil supplement such as Black seed Oil. Black seed oil also has beneficial effects on the immune and general system, however hemp oil is the most balanced oil in terms of omega 3, 6 and 9 etc. (We do not supply) Consuming quality raw oils can help to dissolve these hardened fats, and return nutrient transport into the cells. The use of olive oil and coconut oil can also be beneficial, in terms also of dissolving hardened fats and arterial plaque but do not contain much of the essential fatty acids.
Eat at least five servings of fruits and vegetables a day, use vegetables as the center of the meal.

Remember: do not eat foods boiled in oil, get good cold processed vegetable oils and thus good fatty acids, not trans or cooked animal oils. Eat only Levulose (fructose fruit sugars) not Dextrose (cane, corn, potato, grape sugar). Wellness is your Reward. Remember to chew your food, fruits alone, fluids alone, and melons alone.

Make vegetable and fruit juice part of your daily Wellness Healthy Regime.

For further information on oils see:

The Dramatic Importance of Essential Fatty Acids (EFAs) and Facts that May Contradict What You Have Already ‘Learned’
(I) Genetic tendencies.

Inherited genetic bias can have a bearing on the type of health problems one can develop if the above factors are present. Even if a genetic factor is obvious, it does not mean that one cannot take control of the disorder and either heal it completely or partially using the methods here described along with a good diet and lifestyle. For example:

"Scientists have not found a definitive cause for ALS and the onset of the disease has been linked to several factors, including: a virus; exposure to neurotoxins or heavy metals; DNA defects; immune system abnormalities; and enzyme abnormalities. There is a known hereditary factor in familial ALS (FALS); however, there is no known hereditary component in the 90-95% cases diagnosed as sporadic ALS."

Summary

By treating all the causes and resolving nutritional deficiencies / heightened needs we stand the best chance of resolving these terrible diseases.

Guide to Introducing the Remedies:

Please note: This is a rough guide only, sometimes there are individual considerations to be taken into account, for further suggestions see Adapting to the Regenerative Process, The Core Regime You can also email us at enquires@regenerativenutrition.com for further advice, or telephone from U.K. 0845 512 0999 or international +44845 512 0999

Example Introduction of remedies.

Start with: (Month one)

(1) Immucalm (Kalawalla and Liquorice capsules) - unless Liquorice contraindicated, in which case kalawalla capsules. It can take a month or longer for the Kalawalla to begin to act, that is one reason for starting with this, although the supportive aspects of liquorice can act more quickly.

(2) Vitamin D, unless you are receiving daily exposure of Sun as detailed in article.

(3) Alka-Vita, To begin the elimination of infections (usually Candida infection) from gut and systemically, and also other known or unknown chronic infections that need to be eliminated before any of the other remedies can work to their fullest extent. To gradually alkalise the system. This in turn improves oxygenation and mitochondrial activity, and counteracts free radicals in the most fundamental way, by supplying free-electrons.

(4) MagSea Ions Liquid. Simply add 5ml to a glass of water. This will provide many ionic minerals and trace-elements including magnesium as Magnesium Chloride. This is essential for correct cell energy production, and hence all repair and correct function of the bodies organs and systems.

So, 1, 2, 3, and 4 are typical remedies to begin at once. You can also from the start improve diet to the degree that you wish and introduce Celtic salt into the food. Also ensure you have the correct raw oils in your diet as detailed above.
Month 2

(1) ADD Vitamin B12 Sublingual methylcobalamin

(2) ADD Immunocomplex liquid to restore mitochondrial function, aid detoxification, improve oxygenation and strengthen whole system.

Month 3

If needed ADD Deep Cell Detox for at least 4 to 5 months. (This is also a general high quality nutritional support).

After at least 6 months, if your condition has improved and maintained the same level, i.e. no further improvement for a period of 2 months or more, then you can experiment with withdrawing the Immuncalm or Kalawalla capsules. A month after this you can experiment with reducing B12 lozenges frequency, e.g. one every 4 days. Watch carefully for any deterioration in your condition, and if there is a deterioration re-introduce one remedy such as the Immuncalm or B12 to see if improvement again sets in.

If all infections are not eliminated after 4 months, or on an experimental basis ADD Colloidal Silver liquid, to supply another tool against any known or unknown infections that may not have been eliminated by the Alka-Vita, but do keep up the Alka-Vita to continue to act as an alkaliiser and anti-oxidant agent plus its other beneficial properties.

Immunocomplex, MagSea Ionics, celtic salt, Alka-Vita

and correct raw oils are measures that should be held on a permanent basis, to maintain the balance of the bodies functioning and hence well-being. Immunocomplex is not the cheapest of remedies, especially at the recommended dose of 30ml daily. It should be borne in mind that it is a broad-spectrum source of nutrients that supply almost all the B vitamins, and many other nutrients including chromium, selenium, zinc, Beta-glucans, a variety of anti-oxidants and all in a ‘living’ food state form. If cost is an issues then it is better to reduce the dose after a few months rather than discontinue altogether. Dose can be temporarily increased during waves of detoxification that can occur on any healing program at any time.

Again we need to add that this is just a general guide for you use, you should take advice of a qualified health care professional and you can of course use your own knowledge about your own body as a guide, but it is usually good to check these out by contacting us or other health care person.

The above suggested supplements are selected for their relevance to auto-immune disorders and specifically to the treatment of Progressive Paralytic Diseases of the Nervous System Plus M.E. - Myalgic Encephalomyelitis/Chronic Fatigue. We have designed this program to be as simple as possible on one hand but to provide the most comprehensive program on the other hand that systematically targets all the causes of the diseases to give the best possible outcome. We have not mentioned the use of generally supportive nutrients for the system such as Vitamin C, green super-foods and so on. These are discussed in the article The Core Regime. One of the supplements discussed in the article is Multi-Green Nutrition. This contains vitamin C, Barley Grass juice powder, Sea greens and other nutrients, that is a sensible general support. Any gaps in your nutritional profile can reduce the healing process.
The Causes and Treatment of Progressive Paralytic Diseases of the Nervous System Plus M.E. - Myalgic Encephalomyelitis/Chronic Fatigue

Includes: M.S.-multiple sclerosis, Motor Neuron diseases including ALS.

For companion article see Auto-Immune disorders click here

(1) Definitions of different types Progressive Paralytic Diseases of the Nervous system

(a) The motor neuron diseases (MND)

These are a group of progressive neurological disorders that destroy motor neurons, the cells that control voluntary muscle activity including speaking, walking, breathing, swallowing and general movement of the body. The Motor Neuron diseases include ALS-Amyotrophic lateral Sclerosis, PLS-primary lateral sclerosis, PMA-progressive muscular atrophy, pseudobilbar palsy, progressive bulbar palsy and Spinal muscular atrophy.

Symptoms usually present themselves between the ages of 50-70, and include progressive weakness, muscle wasting, and muscle fasciculations; spasticity or stiffness in the arms and legs; and overactive tendon reflexes. Patients may present with symptoms as diverse as a dragging foot, unilateral muscle wasting in the hands, or slurred speech.

Neurological examination presents specific signs associated with upper and lower motor neuron degeneration. Signs of upper motor neuron damage include spasticity, brisk reflexes and the Babinski sign. Signs of lower motor neurone damage include weakness and muscle atrophy.

Note that every muscle group in the body requires both upper and lower motor neuron's to function. The signs described above can occur in any muscle group, including the arms, legs, torso, and bulbar region.

The symptoms described above may resemble a number of other rare diseases, known as “MND Mimic Disorders”. These include, but are not limited to multi-focal motor neuropathy, Kennedy’s disease, hereditary spastic paraplegia, spinal muscular atrophy and monomelic amyotrophy. A small subset of familial MND cases occur in children, such as “juvenile ALS”, Madras syndrome, and individuals who have inherited the ALS2 gene. However, these are not typically referred to as MND, but by their specific names

(b) MS (multiple sclerosis)

Multiple sclerosis (abbreviated MS, also known as disseminated sclerosis or encephalomyelitis disseminata) is an auto-immune condition in which the immune system attacks the central nervous system, leading to demyelination. Disease onset usually occurs in young adults, and it is more common in women. It has a prevalence that ranges between 2 and 150 per 100,000. MS was first described in 1868 by Jean-Martin Charcot.

MS affects the areas of the brain and spinal cord known as the white matter, destroying a fatty layer called the myelin...
sheath, which wraps around nerve fibers and electrically insulates them. When myelin is lost, the axons of neurons can no longer effectively conduct action potentials. The name multiple sclerosis refers to the scars (scleroses – better known as plaques or lesions) in the white matter. Although much is known about the mechanisms involved in the disease process, the cause remains unknown. Theories include genetics or infections. Different environmental risk factors have also been found.

Almost any neurological symptom can appear with the disease, and often progresses to physical and cognitive disability. MS takes several forms, with new symptoms occurring either in discrete attacks (relapsing forms) or slowly accumulating over time (progressive forms). Between attacks, symptoms may go away completely, but permanent neurological problems often occur, especially as the disease advances.

There are several types of Multiple Sclerosis (MS). Most will only vary in the degree or extent it affects the Central Nervous System (CNS). The most frequent type of MS is Relapsing MS. People with Relapsing MS will experience periods of relapses followed by complete or partial recoveries. This type of MS affects 85% of all MS patients. 50% of these patients will eventually experience progressive MS with or without periods of recovery. There are other types of more aggressive, progressive MS which affects the other 15% of the MS patients.

Myelin helps nerve cells conduct electrical impulses and operate properly. The damage to the myelin causes the CNS to operate improperly and thus, the various MS symptoms, which include bladder and bowel dysfunction, cognitive dysfunction, vision problems, fatigue, walking difficulty, pain, numbness, dizziness, swallowing disorders, tremors and other symptoms.

(c) M.E. Myalgic Encephalomyelitis/Chronic Fatigue

Whilst this condition is not strictly a Paralytic Disease of the nervous system, its causes and treatment indications are very close, if not identical to the Paralytic Diseases of the nervous system, therefore it has been included in this article.

M.E. is an autoimmune disorder and as is discussed below, has all the causative factors associated with the paralytic diseases of the nervous system, such as infection (typically Candida but also others such as Epstein-Bar, glandular fever) heavy metal and or pesticide retention, mitochondrial dysfunction especially, vitamin D deficiency and so on as discussed below. It certainly involves the nervous system and specifically the brain, as well as the immune and circulatory systems. There is additional aspect that has been discovered with M.E and also with more minor chronic fatigue that involves low blood pressure. This is especially noticeable as postural hypo-tension, i.e. if the person suddenly gets up from a sitting or lying position, there is often faintness or dizziness experienced this is due to inherent low blood pressure. This has been found to be at least partly due to insufficient salt (see Celtic salt also ionic minerals and trace elements and MagSea Ionics). In some cases this may be partly due to a low salt diet, it has been found that the adrenal glands in conjunction with hypothalamus in the base of the brain, do not do their job properly in regulating the amount of salt excreted by the kidneys, and too much is lost to the urine. In this case supplementing with Celtic salt and or Ionic minerals or MagSea Ionics is suggested and supporting the adrenals with liquorice can specifically help retention of sodium.

Raising the blood pressure to nearer normal will give more energy and reduce some of the fatigue symptoms. Persons in this situation will need a home blood pressure monitor and to experiment with the salts suggested to find the best dose for them. As can be seen from our general suggestions in the companion article, (For companion article see Auto-Immune disorders click here) the consumption of the correct type of unrefined salt is a normal basic recommendation for well-being in virtually all types of health disorders (Including high blood pressure !)
Symptoms of CFS include widespread muscle and joint pain, cognitive difficulties, chronic, often severe mental and physical exhaustion and other characteristic symptoms in a previously healthy and active person. Fatigue is a common symptom in many illnesses, but CFS is a multi-systemic disease and is relatively rare by comparison. Diagnosis requires a number of features, the most common being severe mental and physical exhaustion which is "unrelieved by rest," is worsened by exertion, and is present for at least six months. All diagnostic criteria require that the symptoms must not be caused by other medical conditions. CFS patients may report additional symptoms, including muscle weakness, cognitive dysfunction, hypersensitivity, orthostatic intolerance, digestive disturbances, depression, poor immune response, and cardiac and respiratory problems. It is unclear if these symptoms represent co-morbid conditions or are produced by an underlying etiology of CFS.

(d) Myasthenia gravis

This literally means "serious muscle-weakness"; from Greek "muscle", "weakness", and Latin gravis "serious"; abbreviated MG is a neuromuscular disease leading to fluctuating muscle weakness and fatigability. It is an auto-immune disorder, in which weakness is caused by circulating antibodies that block acetylcholine receptors at the post-synaptic neuromuscular junction, inhibiting the stimulative effect of the neurotransmitter acetylcholine. At 200–400 cases per million it is one of the less common auto-immune disorders.

The essential point to bear in mind is that all these diseases, no matter how we classify them have causes in common. They are all auto-immune disorders, and some may also be mitochondrial disorders. There is enough in common with all these auto-immune degenerative nerve disorders to discuss the common causes and by implication and through experience, the treatment.

Also it is generally understood by Immunologists that the destructive aspect of a deranged immune system where an aspect of the immune system attacks parts of the persons body, in the case of these diseases various parts of the nerves, or nerve sheaf's, nerve cells and brain cells are involved. The genetic and constitutional variations of each person are sufficient to explain why basically the same disease process will attack different parts of the nervous system, resulting in different named diseases each with it's own classic set of symptoms.

(2) Basic causes of Auto-immune disorders with an emphasis on the Progressive Paralytic Diseases of the Nervous system Plus M.E. (Myalgic Encephalomyelitis/Chronic Fatigue)

The following causes will vary in significance between individuals and possibly the type of disorder. However as all the suggested treatments are non-toxic and have broad-acting nutrient effects...all the listed nutrients and herbs can be systematically/incrementally introduced as a treatment program to suit the individual. (Except with Liquorice, in very rare cases of exceptionally high blood pressure-ordinary high BP and pregnancy)

(a) Auto-immune attack.

This factor is always present and is usually connected with the other causes, e.g. mercury and pesticide toxicity and Candida infection can keep the immune system in a state of imbalance, producing auto-immune reactions. There are however, herbs that can insignificantly turn off the auto-immune destructive reactions that maintain the disease. These herbs include Liquorice and Kallawala(\textit{Polypodium leucotomos}). Also, colloidal silver (used to fight the infections) has some immune regulatory and healing effect

(b) Heavy metal and pesticide toxicity also any neurotoxins the person may have had exposure to in the past. These can be eliminated in a few weeks or months using nutritional combinations such as Deep Cell \textit{Deep Cell Detox} (DCD)
Note: If you do not take a course of Deep Cell Detox, it is suggested that one of the ingredients, Alpha Lipoic Acid, be used as part of your regime. A totally natural and unique antioxidant, ALA is both water & fat soluble, so acts both inside and outside your cells neutralising and flushing out of the body the worst types of free radicals (a major cause of degenerative disease & cellular aging). As it deactivates both water and fat soluble free radicals, both lipoproteins and membranes are protected - no other anti-oxidant is know to do this. ALA, is able to penetrate into the nerve cells to help restore normal functioning. However if you do have heavy metals in the cells then the addition of Sea Greens, as contained in Deep cell detox is a wise precaution, as this removes toxins and heavy metals from the body via the gut, otherwise they are re-circulated back into the blood and again into the cells.

Most persons, especially the chronically ill have absorbed, over their lifetime, sufficient heavy metals and other toxins to contribute or even to be the actual 'final straw that broke the camels back' that lead to the disease. Most common sources of acquiring heavy metals for example is via dental fillings containing mercury. It has been and shamefully is, still the common practice in many countries (some countries have now banned them) to be given fillings with mercury as the major component, unless you specifically request non-mercury fillings. The mercury amalgam fillings slowly gas off mercury for their entire life in the mouth and much of this is directly absorbed into the brain. Another shameful source of the extremely toxic mercury is via injections, such as flu injections ("I never felt right since my flu injection" is a common experience) and even worse into young children and babies as vaccinations.

The destructive aspects of the mercury absorbed could take years to manifest into a recognizable clinical disorder, such as MS, or could precipitate quite rapidly in susceptible children, autism. I ask myself why this shameful practice continues when there is massive scientific data to demonstrate the dangers of chronic mercury poisoning. It is ostensibly used as a preservative in vaccinations, yet there are many safer preservatives available. Are they deliberately trying to kill us? Or is it, that to admit liability would bankrupt pharmaceutical giants and governments along with them, in medical negligence claims?

Another common example of a chronic poison precipitating chronic disease including chronic fatigue and Progressive Paralytic Diseases of the Nervous system is organo-phosphates. These are regularly sprayed onto crops (And is also used in household spays for killing parasites e.g. fleas) If you live or have lived in a crop spraying region for any length of time then your exposure could be high. Organo-phosphates are proven neuro-toxins. For persons with a poor ability to eliminate these, they can build up in the tissues and at some point, possibly years later contribute to all sort of diseases of the nervous and immune systems.

(c) Infections.

This often includes Candida Albicans fungal infection (usually induced by anti-biotics killing the beneficial bacteria in the gut and or low immune system plus poor dietary choices/lifestyle etc. Other infections can also be relevant both known and unknown e.g. Micoplasma. All types of infections can be eliminated with non-toxic remedies that do not kill beneficial bacteria such as Colloidal Silver.

Alka-Vita

This has the tremendous advantage that it alkalises, therefore increases oxygenation, counteracts free radical attack and damage and therefore undermines the basis of disease. It is also directly 'anti-septic' against fungal infections, including Candida and possibly all harmful micro-organisms and parasites, although there is not enough information on this, we do know that all anaerobic infections (All the harmful ones) are attacked by free electrons that Alka-vita supplies and are eventually destroyed or severely limited by an alkaline environment. Alka-Vita is also a cost effective form of treatment.
**Colloidal Silver:**

Eliminates infections of various types, known and unknown that contribute to auto-immune disorders. Eliminating chronic infections is essential to achieve freedom or at least amelioration from your auto-immune disorder. Colloidal silver will, if used over a sufficient period of time wipe most chronic infections that go along with virtually all cases of auto-immune disorders. It also has its own calming effect on auto-immune reactions.

**Colloidal Silver** comes as a water based spray, and by spraying in the mouth every hour or so, the need to purchase large amounts is eliminated.

To help strengthen the correct side of the immune system, help cell oxygenation (by normalising mitochondria) and provide broad-spectrum nutritional support, in turn helping to prevent the return of the chronic infections, we recommend (live cell) **Immunocomplex**, for full article click here. See also, the Article concerning **Mycoplasma Infections** and their link to chronic disease.

(d) **Vitamin B12 Deficiency** for full article click here

This vitamin can often be deficient due to absorption and assimilation issues as well as dietary ones. It is discussed in detail in the article Vitamin B12. Not only does B12 act on the neurons themselves, the symptom picture of B12 deficiency also corresponds closely with MS symptoms, so its experimental use would seem sensible across the range of neuro-degenerative disorders discussed in this article.

Example: Multiple sclerosis Symptoms of MS have been noted in persons with a vitamin B12 deficiency prior to evidence of megaloblastic anemia. There is a remarkable epidemiologic similarity between MS and pernicious anemia, and similar HLA (human lymphocyte antigens) are suggested for the association of the two conditions.

High dose vitamin B12, in a form that crosses the blood brain barrier easily is recommended i.e. **methylcolbalamin**. This is non toxic and is available as a sublingual lozenge, so that intravenous injections are not required.

(e) **Magnesium Deficiency**.

Whilst not strictly a cause, it’s deficiency being widespread, it is such an important nutrient overall and especially important for nervous system functioning, it’s use in these disorders is a sensible contingency to optimise the chance of the most rapid recovery. Not only does it improve functioning of the nervous system but can help mitigate the presence of neuro-toxins like heavy metals etc. High dose skin application of magnesium chloride liquid (MagSea Pure) is available. for full article click here. By using **MagSea Ionics** liquid, added to water we can more gradually resolve magnesium deficiency and also supply a full range of Ionic mineral and trace-element salts.

(f) **Mitochondrial malfunction**.

Every cell in the body has little mini-cells inside, these are responsible for the overall cell respiration and the release of energy via the ATP cycle. The Mitochondria are easily damaged by other factors already mentioned, such as virus, heavy metals and pesticides. This results in lowered cell respiration a drop in the available energy in every organ and system in the body, including the immune system. The mitochondria can easily be returned to proper functioning by supply the correct mixture of respiratory - chain enzymes. These are produced by live nutritional yeasts bred in a high oxygen environment and are available in products **Zell Oxygen and Live cell Immunocomplex**. This aspect of
pathology has been specifically identified in Parkinson's disease, but it is likely present in all degenerative disorders to a greater or lesser degree.

(g) Vitamin D Deficiency

Vitamin D is essential to aid the immune system and many biochemical processes including the utilisation of calcium and magnesium. Its deficiency is almost universal in northern climates and even more so since the introduction of sun screen. Its deficiency has been linked strongly to auto-immune diseases. Furthermore the dose recommendations in the past were grossly under-estimated. At least 2000IU a day is recommended. Introducing this will have a general calming, strengthening and healing effect allowing any other remedies to work more completely [For article click here]

Vitamin D Safety Issues

In the past there were reports of toxicity of higher doses. Further investigation has found that most or all of these where for Vitamin D2, ergocalciferol. Vitamin D3 or cholecalciferol is the form natural to the body. And is not toxic, in doses below 10,000 I.U. daily.

In very rare cases persons can be hypersensitive to Vitamin D, and is usually confined to persons with such conditions are sarcoidosis, oat cell carcinoma of the lung, and non–Hodgkin's lymphoma, although other illness, such as primary hyperparathyroidism, can cause the syndrome. Periodic measurements of 25(OH)D levels and serum calcium will alert the physician to the need to do more tests, such as 1,25(OH)2D3 or PTH. For full details of safety, dose and therapeutic potential see full product information [click here]

(H) Essential fatty acid deficiency of raw oils

This is also a factor in the development of any disease and raw fatty acids also help to integrate sunlight (Helps to prevent burning, along with other nutrients such as anti-oxidants, and bring the sun energy in the form of 'biological electrons' into the cells) A good source of essential fatty acids is raw nuts and seeds, including sunflower seeds, pumpkin seeds, walnuts and almonds.

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Title: THYMUS DISORDERS
Including Myasthenia Gravis

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Large Scale Study of the Safety and Efficacy
Of the SCIO Device
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This study was performed in the field by practicing Biofeedback technicians. Data was collected and the study supervised by the Ethics International Institutional Review Board of Romania. The Data analysis and study presentation is done By the The Centro Ricerche, University of Venice + Padova, Italy

Abstract:

This study demonstrates the safety and effective qualities of the SCIO device used in a large scale study. A large scale study of over 100,000 patients with over 300,000 patient visits reported their diseases. Many of them reported this disease. And the results of their therapy are reported in this study. 52 were treated 59% improvement was seen.

Introduction:

Overview:

This Large scale research was designed to produce an extensive study of people with a wide variety of diseases to see who gets or feels better while using the SCIO for stress reduction and patient monitoring. The SCIO is an evoked potential Universal Electro-Physiological Medical apparatus that gauges how an individual reacts to miscellaneous homeopathic substances. The device is registered in Europe, America, Canada, S Africa, Australia, S. America, Mexico and elsewhere. The traditional software is fully registered. Some additional functions where determined by the manufacturer to be worthy of evaluation. Thus a study was necessary to determine safety and efficacy. (As a result of these studies these additional functions are now registered within the EC)

A European ethics committee was officially registered and governmental permission attained to do the insignificant risk study. Qualified registered and or licensed Biofeedback therapists where enlisted to perform the study. Therapists were enrolled from all over the world including N. America, Europe, Africa, Australia, Asia, and S. America. They were trained in the aspects of the study and how to attain informed consent and transmit the results to the ethics committee or IRB (Institutional Review Board).

2,569 therapists enlisted in the study. There were 101,201 patients. 69% had more than one visit. 43% had over two visits. There were over 300,000 patient visits recorded. The therapists were trained and supervised by medical staff. They were to perform the SCIO therapy and analysis. They were to report any medical suspected or confirmed diagnosis. Therapist’s personnel are not to diagnose outside of the realm of their scope of practice. Then the therapist is to inquire on any reported changes during the meeting and on follow-ups any measured variations. It must be pointed out that the Therapists were free to do any additional therapies they wish such as homeopathy, nutrition, exercise, etc. Therapists were told to not recommend synthetic drugs. Thus the evaluation was not reduced to just the device but to the total effect of seeing a SCIO therapist

Part 1. The emphasis was on substantiating safety followed by efficacy of the SCIO.

Part 2. Proving the efficacy of the SCIO on diseases (emphasis on degenerative disease)

Part 3. Proving the efficacy of the SCIO on the Avant Garde therapies of Complementary Med

Part 4. QQC standardization
Methods and Materials:

**SCIO Device:**

The SCIO is an evoked potential Universal Electro-Physiological Medical device that measures how a person reacts to items. It is designed to measure reactions for allergy, homeopathy, nutrition, sarcodes, nosodes, vitamins, minerals, enzymes and many more items. Biofeedback is used for pre-diagnostic work and or therapy.

The QXCI software will allow the unconscious of the patient to guide to repair electrical and vibrational aberrations in your body. For complete functional details and pictures, see appendix.

**Subspace Software :**

The QXCI software is designed for electro-physiological connection to the patient to allow reactivity testing and rectification of subtle abnormalities of the body electric. If a patient is not available a subspace or distance healing link has been designed for subspace therapeutics. Many reports of the success of the subspace have been reported and thus the effectiveness and the safety of the subspace link is part of this test. Many companies have tried to copy the subspace of Prof. Nelson and their counterfeit attempts have ended in failure.

**SOC Index :**

The SCIO interview opens with a behavioral medicine interview. This is called the SOC Index. Named after the work of Samuel Hahnemann the father of homeopathy, he said that the body heals itself with its innate knowledge. But the patient can suppress or obstruct the healing process with some behavior. Hahnemann said that the worst way to interfere with the healing natural process was Allopathy or synthetic drugs. Theses upset the natural healing process by unnatural intervention and regulation disturbance. Other ways to Suppress or Obstruct the Cure are smoking, mercury amalgams, stress, lack of water, exercise and many others. This behavioral survey then gives an index of SOC.

The scores relate to the risk of Suppression and Obstruction to the natural Cure. The higher the scores the more the Suppression and or Obstruction. The scores of 100 or lower are ideal. A copy of the SOC index questions appear in the appendix.

**Study Technicians :**

The study technicians were educated and supervised by medical officers. The study technicians were to execute the SCIO therapy and analysis. All were trained to the standards of the International Medical University of Natural Education. Therapists from all over the world including N. America, Europe, Africa, Australia, Asia, S. America and elsewhere were enlisted to perform the study according to the Helsinki study ethics regulations.

They were to chronicle any medical suspected or confirmed diagnosis. Therapists personnel are not to diagnose outside of the realm of their scope of practice. Then the study technician is to inquire on
any disclosed observations during the test and on follow-ups report any measured changes.

To test the device as subspace against the placebo effect, two of the 2,500+ therapists were given placebo SCIO devices that were totally outwardly the same but were not functional. These two blind therapists were then assigned 35 patients each (only 63 showed). This was to assess the double blind factor of the placebo effect as compared to the device. Thus the studied groups were

A. placebo group, B. subspace group, and C. attached harness group.

Cross placebo group manipulation was used to further evaluate the effect.

**Important Questions**: these are the key questions of the study

1. Define Diseases or Patient Concerns
2. Percentage of Improvement in Symptoms
3. Percentage of Improvement in Feeling Better
4. Percentage of Improvement Measured
5. Percentage of Improvement in Stress Reduction
6. Percentage of Improvement in SOC Behavior
7. What Measured + How (relevant measures to the patient’s health situation)
8. If Patient worsened please describe in detail involving SOC

After the patient visit is was complete the data was e-mailed to the Ethics Committee or IRB for storage and then analysis. This maneuver minimized the risk of data loss or tampering. Case studies were reported separately in the disease analysis.

**MEDICAL DETAILS**

A disease characterized by great muscular weakness (without trophy) and progressive fatigability. The most common symptoms are ptosis, diplopia, and fatigability of muscles following exercise. Ocular muscles are affected first in 40pc of cases and eventually in 85pc. Dysarthria, dysphagia, and proximal limb weakness are common. Sensory modalities and deep tendon reflexes are normal. The symptoms and signs fluctuate in intensity over the course of hours to days. Severe generalized quadriparesis may develop, especially during relapses. Some patients present with bulbar symptoms; eg, alternation in vice, nasal regurgitation, choking, or dysphagia. Life-threatening respiratory muscle involvement (myasthenic crisis) occurs in approximately 10pc of patients. Ocular myasthenia is a subclass of the generalized disease that remains limited to extra-ocular muscle involvement.

- Motor disturbances (progressive muscle weakness during activity, respiratory muscle impairment during myasthenic crisis, difficulty supporting head due to neck muscle weakness, dysarthria, dysphagia)
• Diplopia
• Ptosis
• Lack of facial expression
• Nasal vocal tone

C. Myasthenia gravis
Muscle disease characterized by weakness and resulting from a deficiency, or premature breakdown, of acetylcholine.

Associations
(i) Thymoma
(ii) Hyperthyroidism
(iii) Diabetes mellitus
(iv) SLE
(v) Rheumatoid disease

Results:
Before we review the direct disease improvement profiles, we need to review the overall results. The first most basic of question in the results is the basic feedback of the generic patient conditions.

1. Percentage of Improvement in Symptoms
2. Percentage of Improvement in Feeling Better
3. Percentage of Improvement Measured
4. Percentage of Improvement in Stress Reduction
5. Percentage of Improvement in SOC Behavior

The SOC index gives us great insight to this study. Each disease has a different cut off where the ability of the SCIO to help was compromised. As a general index scores of 200 + where much less successful.

Urinary Incontinence
This disease group total number of patients was 52
Subspace Treatment 21 patients, 31 SCIO Harness Patients

OVERALL ASSESSMENT

A. Subspace Treatment 34 patient visits
There were 0 cases of patients who reported a negative Improvement.
None of these cases reported any major difficulty.
There were
0 cases reporting no improvement of Symptoms, .001% of Subgroup
3 cases reporting no improvement in feeling better, .001% of Subgroup
3 cases reporting no improvement in stress reduction .001% of Subgroup

12%--- Percentage of Improvement in Symptoms
21%--- Percentage of Improvement in Feeling Better
40%---Percentage of Improvement Measured
37%-- Percentage of Improvement in Stress Reduction
13%----Percentage of Improvement in SOC Behavior

B. SCIO Harness Treatment 100 patient visits

There were 0 cases of patients who reported a negative Improvement.
None of these cases reported any major difficulty.
There were

0 cases reporting no improvement of Symptoms, .001 % of Subgroup
4 cases reporting no improvement in feeling better, .001 % of Subgroup
1 cases reporting no improvement in stress reduction .001% of Subgroup

49%--- Percentage of Improvement in Symptoms
69%--- Percentage of Improvement in Feeling Better
59%---Percentage of Improvement Measured
62%-- Percentage of Improvement in Stress Reduction
39%----Percentage of Improvement in SOC Behavior

CASE STUDY REPORT CONDENSATION:

“A 7 year old with medically pre-diagnosed rheumatoid arthritis came into my office in severe pain. She was unable to move without major discomfort, playing with any mobility, bike riding and running were out of the question. Even sitting was agonizing and she sat the majority of her time reclined. Using the EPFX to attempt to rebalance her stress she showed continual progression in her improvement. By looking at imbalances in minerals, vitamins, amino acids, and fatty acids her mother was able to make some lifestyle changes in the child's eating habits to help her balance those frequencies. After 8 visits the child’s knees, which were equivalent to very large grapefruits in size, had reduced to normal dimensions and other inflamed areas and joints had also gone to a more normal size. She was now able to go out biking and playing with her siblings and school friends. The mother reported that the doctor did not know what was happening, but that he was ecstatic and as she quoted "whatever you are doing please keep doing it for her, it seems to be working."

Shortly after this time her aunt decided to purchase a device and the child's biofeedback care was turned over to her. I saw the children and their mother a month ago and she is looking healthy and is no longer in pain according to the mother. Another success story using biofeedback.

I am not an expert in the field of AIDS or HIV but I received a 56 year old male homosexual client in need of help. He was determined to use natural methods, supplements and stress reduction of massage and biofeedback to maintain his health and keep his HIV at bay. He decided to use the biofeedback therapy every other week and has done so for over a year. During this time it has been interesting watching his
imbalances; when there are more he informs me he is under more stress at work, when the numbers are more balanced he informs me it's been a very relaxing period in his life. He has continued to amaze his physician and his counts continue to improve. Under one very stressful period his counts decreased and he added homeopathics which were to help with balancing his thymus and came in for his normally scheduled visit. He rebalanced to the doctors amazement and has remained stable and happy over the past two years. He now makes an appointment when he feels highly stressed and is only on a maintenance visit as he calls it.

A 39 year old woman who is having a stressed second marriage, and has been in three long term relationships is unhappy because she cannot get pregnant. Her current husband does not wish for more children as his two are teens and this is causing more stress according to my client. She does not understand why she cannot get pregnant and neither can her medical doctors so she has decided to try biofeedback. I worked on her for several visits and she reported that she was feeling much less anxiety in her life. Using this technique of biofeedback and realizing that her hidden emotions were causing her more stress she agreed to talk more to her husband about their issues. She reported back to me on her 7th visit that she was expecting a baby. Our appointments were terminated at that time until after pregnancy and I am happy to report that she delivered a healthy, happy and wonderful baby boy just after to her 40th birthday. She then scheduled her "a tune up" after that when she felt overly stressed.

A 46 year old woman with diagnosed Fibromyalga was helped into my office. She was taking 7 prescribed medications and felt that they were no longer helping her and that she was getting worse and worse. Her decision was to try more alternative help and try and de-stress her life. We began her appointments. Over the next year of monthly visits she and her doctor reduced her medications down to only one, and her Fibromyalga rarely flared any longer...unless she became overly stressed. She latter purchased her own EPFX for her families private use, although I do still see her as a client about every six months, when she says it's "her turn to get pampered".

A 35 year old woman with five children came to my office. She was always tired, had constant headaches, heart palpitations and anxiety attacks, and was under a doctors care. The doctor could find nothing wrong with her. Her family had grown up Amish and had convinced her to seek outside help for her problems other than her medical doctors. She came to my office once a week for a month and then monthly for the next six months. While she was doing biofeedback for stress reduction she realized that she had the energy for her children, was able to function as she should and had very few anxiety attacks. She has since purchased a biofeedback device to try and help herself and her family remain healthy.

A 69 year old woman with major stress started seeing me for stress. She was working two jobs and had divorced and felt a failure, yet she could not keep from being in contact with her ex-husband. She stated she felt unloved and that everyone abused and used her and she was tired of being depressed. We began Biofeedback sessions, she chose to come in on a weekly basis even though the sessions appeared to be helping longer than that. It did not take me long to discover that the biofeedback was only part of her help. What she needed the most was simply a shoulder to lean on and someone to talk to. It is sad when someone has to pay for a friend that they feel has nothing to gain
from them talking to them. She stated that her "friends" always had an ulterior motive for seeing her and talking to her. She started de-stressing enough that she began dreaming at night of past issues and traumas of her childhood and realized that this is one of the reasons she was feeling so depressed and admitted that she had been feeling suicidal. But, that with the help we had gotten from Biofeedback she no longer had the wish to die. I suggested that in order to speed up her past traumas she seek professional help and gave her the name of a psychologist who could help with past life trauma as well as trauma regression. She started to see this professional and continued to come to the office for a monthly appointment. This continued for two years. She remained health and felt fine and has gradually decreased her appointments. When I began traveling more and at the office less I referred her to a different biofeedback technician.

A 56 year old male who had served in the Golf War made an appointment at my office. He had been exposed to Agent Orange and had returned injured and with Paranoid schizophrenic he was currently under the care of the VA Hospital. At that time he could not go out during the day without help and medication for fear of someone hurting him. The voices in his head were telling him to kill himself and that other were after him. After six weekly his trust to me and willingness to talk had increased, he had informed me the voices had reduced but he was still having much of the same symptoms as before. At this time he informed me that he had a metal plate in his skull from his war injury, so we changed the placement of his electrodes within the next three visits he reported that he was much better. He had gone to the VA and they were extremely impressed with the biofeedback therapy he had been undergoing. If things were better yet again at his next appointment they were going to re-evaluate his medication and they suggested he continue the biofeedback. We continued with two more biofeedback sessions using the EPFX and he made his next appointment at the VA hospital, where they not only re-evaluated but removed his medication. Many of these prescriptions were psychotropic medications; his body did not respond well to this and within two days of this removal he tried to commit suicide. He was then institutionalized.

A 65 year old male who had a cancer scare with previous skin melanoma had decided to try biofeedback and alternative health therapy. He and his wife 63, had both been feeling very tired as of lately and more stressed than in the past, because of this they decided to try biofeedback. After one visit they realized they were sleeping better and feeling more energy. They decided to continue this process on a monthly visit. They continued this process for a year while going to their physician who had been watching several pre-cancerous lesions. Most of these lesions had disappeared and both the doctor and the client were thrilled. They now remain on a yearly visit with biofeedback to monitor their stress levels.

A 76 year old woman who had taken care of her sister came into the office. Her brother had died a year before and her sister had cared for him while he was sick with a stomach issue. Shortly after this her sister became ill for several months with the same mysterious symptoms that the brother had had and she had taken care of her until her death. My client was now nervous because she had had diarrhea for over 6 months which were part of the same symptoms. We began biofeedback and had 10 days until she was scheduled for a colonoscopy. She had earlier had a cancerous polyp removed from the colon and was concerned of what would be found now. Because of our limited time we met every other day
to do stress balancing using the EPFX. She went to her scheduled appointment and was pleased to report to her doctor that the diarrhea was now gone and that she was feeling better. She was able to eat more now that she had been over the past six months without feeling bad and able to keep the food down and had begun to put back on some of her earlier weight loss. The colonoscopy test was complete and showed only one bacterial polyp. She was thrilled with the results.

Michigan, U.S.A."

**SUGGESTED THERAPIES**

**THYMUS DISORDERS**

1. The thymus is a gland residing in the chest which helps to control certain parts of the immune system. At birth the thymus is the largest gland in the body. It does not grow. The body should grow up around it.
2. The thymus gland should not grow and it should not atrophy. But it can atrophy in extreme cases of stress or toxicity.
3. Thymus hormones help to stimulate the white blood cells and their overall control of bacteria and fungus and degenerative tissues. The thymus hormone is cataloged by many as an anti-aging hormone as it helps the body to deal against the intruders that the body is more susceptible to as it ages.
4. *THYMUS LIQUESCENCE contains various hormones, minerals, vitamins, and thymus tissue to help stimulate the release of thymosin as well as to provide an external source of thymosin.
5. Use of *THYMUS LIQUESCENCE in the elderly, past the age of 80, can be helpful in a daily dose. For younger patients it should be used only for a month or two of therapy, then switch to the homeopathic sarcode of *THYMUS/THYROID/PARATHYROID.

**THYMUS**

The THYMUS LIQUESCENCE helps to supply thymus hormones while encouraging the rebuilding of Thymus function.

Discussion:

The results show significant improvement in symptoms and feeling better. The Collective results show a dramatic benefit to the SCIO therapist visit.
SCIO TREATMENT SUGGESTED

**Color** - set patient's favorite if desired, or choose color by chakra that is deficient

**Cosmic**: set 1 for physical body, 2 for astral, 3 for etheric, 4 for mental, 5 for cosmic, 6 for other

**Magnetic Method** - 1+10 is universal, 7 for detox, 8 for regrowth of new tissue, 3 for injury, 2 for metabolic correction, 5 for inflammation, 6 for infection, 9 for psych stress, 2 for energy stimulation

**Frequency** --- 111 hz—1111 hz,
Scalar for 30 min once a month in early stages once a week in later stage
Auto Trivector for 30 min once a month in early stages once a week in later stage
Myasthenia gravis is a chronic disorder characterized by weakness and rapid fatigue of any of the muscles under your voluntary control. It’s caused by a breakdown in the normal communication between nerves and muscles.

Myasthenia gravis (MG) is a chronic autoimmune disorder that results in progressive skeletal muscle weakness. MG causes rapid fatigue (fatigability) and loss of strength upon exertion that improves after rest. Myasthenia gravis is caused by a defect in the transmission of nerve impulses to muscles. Normally when impulses travel down the nerve, the nerve endings release a neurotransmitter substance called acetylcholine. In myasthenia gravis, antibodies produced by the body’s own immune system block, alter, or destroy the receptors for acetylcholine.

Types of Myasthenia gravis

Myasthenia gravis can be classified according to which skeletal muscles are affected. Within a year of onset, approximately 85–90% of patients develop generalized myasthenia gravis, which is characterized by weakness in the trunk, arms, and legs.

About 10–15% of patients have weakness only in muscles that control eye movement. This type is called ocular myasthenia gravis.

Other types of MG include congenital, which is an inherited condition caused by genetic defect, and transient neonatal, which occurs in infants born to mothers who have MG. Congenital MG develops at or shortly after birth and causes generalized symptoms.

Transient neonatal MG is a temporary condition that develops in 10–20% of infants born to mothers who have MG. Transient neonatal MG is caused by circulation of the mother’s antibodies through the placenta and it lasts as long as the mother’s antibodies remain in the infant (usually a few weeks after birth).

Incidence and Prevalence of Myasthenia gravis

Myasthenia gravis affects approximately 2 out of every 100,000 people and can occur at any age. It is most common in women between the ages of 18 and 25. In men, the condition usually develops between 60 and 80 years of age.
Initially, people with myasthenia gravis may complain about specific muscle weakness, particularly in the eyes, face and neck. They may have difficulty swallowing, chewing or speaking, and may have double vision. They also may feel fatigue, especially later in the day. Symptoms can be aggravated by emotional stress, systemic illness such as a viral respiratory infection, menstrual cycle, pregnancy, hypothyroidism or hyperthyroidism, and other factors.

Myasthenia gravis can be controlled. Some medications (Cholinesterase inhibitors, such as pyridostigmine (Mestinon) and corticosteroids) improve neuromuscular transmission and increase muscle strength, and some suppress the production of abnormal antibodies. These medications must be used with careful medical followup because they may cause major side effects. Thymectomy, the surgical removal of the thymus gland (which often is abnormal in myasthenia gravis patients), improves symptoms in certain patients and may cure some individuals, possibly by re-balancing the immune system. Other therapies include plasmapheresis, a procedure in which abnormal antibodies are removed from the blood, and high-dose intravenous immune globulin, which temporarily modifies the immune system and provides the body with normal antibodies from donated blood.

Homeopathy treats the person as a whole. It means that homeopathic treatment focuses on the patient as a person, as well as his pathological condition. The homeopathic medicines are selected after a full individualizing examination and case-analysis, which includes the medical history of the patient, physical and mental constitution etc.

Following homeopathic medicines have been found effective in many cases of Myasthenia gravis:

- **Alumina, Conium Gelsemium**

The following medicines may also prove useful according to the indications:

- **Zincum, Cabo-an, Niccolum, Psorinum, Sepia, Guare, Cadmium, Graphites, Cocc.**
Treatment of myasthenia gravis

Stephen W Reddel, Sydney Neurology, Brain and Mind Research Institute, The University of Sydney, and Departments of Neurology and Molecular Medicine, Concord Repatriation General Hospital, Sydney

SUMMARY

Myasthenia gravis is a syndrome of weakness and fatigue due to dysfunction of the neuromuscular junction. It is an antibody-mediated autoimmune condition with a range of moderately effective treatments. Occasionally patients go into remission spontaneously, but most require treatment. Mild disease, such as that confined to the ocular muscles, can often be treated with pyridostigmine alone. More significant or generalised weakness requires immunosuppression, principally with prednisone and azathioprine. The response to immunosuppression is slow, ranging from several months to 1-2 years for a full response. Short-term use of antibody-based therapy such as plasma exchange or intravenous immunoglobulin is warranted for more severely affected patients. Thymectomy offers the hope of drug-free remission but as yet remains unproven. Treatment-related morbidity is considerable, but partly preventable.

Key words: azathioprine, immunosuppression, prednisone, pyridostigmine, thymectomy.

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Introduction

Myasthenia gravis is an autoimmune disease which causes muscular weakness due to dysfunction of the neuromuscular junction (Fig. 1). Auto antibodies directed against antigenic proteins on the postsynaptic side of the neuromuscular junction result in both blockade of transmission and damage to the postsynaptic structure. As a result the motor neuron is unable to ‘talk’ to the muscle fibre and weakness results. The known antigens to which the auto antibodies bind are the acetylcholine receptor and, less commonly, muscle-specific tyrosine kinase.

The prevalence of myasthenia gravis is about 1 in 10 000. The gender ratio is approximately equal, with a peak incidence of onset in the 20s for women and the 60s for men. Around 10% of patients with a positive acetylcholine receptor antibody test have an associated thymoma.

Fig. 1

Normal muscular junction
In the normal neuromuscular junction, acetylcholine released from the nerve terminal following a nerve action potential, binds to the acetylcholine receptor on the postsynaptic muscle, triggering a muscle action potential propagated by the voltage gated sodium channel. Acetylcholinesterase scavenges and breaks down unbound acetylcholine. In a separate pathway, neural agrin binds muscle specific tyrosine kinase initiating clustering of phosphorylated rapsyn and acetylcholine receptors, stabilising the postsynaptic structure opposite the nerve.

In myasthenia gravis caused by antibodies to the acetylcholine receptor, there is blockade of the binding site for acetylcholine, cross-linking of the acetylcholine receptor with subsequent internalisation and reduction in its surface expression, and initiation of complement and cellular inflammatory cascades with damage to the post- and presynaptic structures. The molecular physiology of myasthenia gravis mediated by antibodies to muscle specific tyrosine kinase has not been established.

**Diagnosis**

There are a range of diagnostic tests for myasthenia gravis. These include dynamic tests for measuring muscle weakness (for example, response to edrophonium or ice pack), electrical tests such as repetitive stimulation or single fibre electromyography, and measurement of antibodies to acetylcholine receptor and to muscle-specific tyrosine kinase.

**Clinical manifestations**

Myasthenia gravis affects some regional muscles more than others. Most commonly the orbital muscles are affected first, with either diplopia or ptosis. However, myasthenia gravis may first affect the
bulbar muscles (speech and swallowing), the neck muscles (head drops) and proximal or rarely distal limb or respiratory muscles. Involvement is fairly symmetrical except in the eyes. Symptoms may get worse towards the end of the day or after a few minutes of continuous use - for instance speech may become slurred over a few minutes. More severe myasthenia gravis affects multiple muscular regions and may be sufficiently severe to cause respiratory failure and death if untreated.

**Natural history of myasthenia gravis**

Generally, myasthenia gravis is a persistent disease requiring chronic treatment. Fluctuations over the long term are the norm. Some patients go into long-term remission spontaneously - approximately 15-25% after five years for those presenting with generalised disease and somewhat more for those presenting with ocular disease only. Late relapse after sustained remission also occurs, the longest reported example being after 32 years. It should be noted that the neuromuscular junction can be reformed, unlike many parts of the nervous system. Muscle strength that has been affected by myasthenia gravis for a long time often recovers with treatment. This means that the intensity of treatment for myasthenia gravis can be modulated to the current severity of the disease.

Over time, patients with clinically isolated ocular myasthenia gravis often progress to generalised myasthenia gravis. Treatment with corticosteroids can reduce the likelihood of progression, and control both ocular and generalised weakness completely in many cases. It is not known if this alters the natural history or the need for long-term treatment. It is therefore unclear whether treatment should be commenced for ocular disease or just 'as required' to control symptoms that are causing sufficient disability to justify the adverse effects of treatment. Long-standing ocular misalignment may not recover despite generalised remission.

**Treatment**

The diagnosis must be confirmed before treatment, because the mainstay of treatment for most patients is immunosuppression. Treatments to prevent the adverse effects of immunosuppression should be started simultaneously with the therapy (see Table 1). There is no robust evidence that long-term treatment actually cures the condition, so some patients choose to avoid the adverse effects of immunosuppressive therapy and accept degrees of weakness. Coping without treatment is not always the safest strategy as patients with significant weakness, particularly in the bulbar musculature, are at risk of ventilatory failure or of needing intensive care following an intercurrent respiratory infection. Immunosuppressive treatment is therefore strongly recommended for control of significant bulbar weakness.

Initial treatment is usually with pyridostigmine, followed by prednisone and azathioprine if the response is incomplete. A combination of approaches is often useful to cover deficiencies in each available drug.

Immunosuppression produces a very slow response, often taking many months to 1-2 years. An unrealistic expectation of a speedy response is often a problem for both the patient and the doctor.

There are four main approaches to treatment, each with very different durations of effect, requirements, consequences and adverse effects.
**Table 1**

**Prophylaxis of the complications of immunosuppression**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prophylaxis措施</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoporosis prevention</td>
<td>Measure bone density before treatment and yearly while on treatment. Start calcium and vitamin D supplements. Bisphosphonates may reduce bone loss associated with the chronic use of glucocorticoids.</td>
</tr>
<tr>
<td>Cardiovascular risk</td>
<td>Risk factor modification should be standard and includes advice to stop smoking, start an exercise program and manage hypertension.</td>
</tr>
<tr>
<td>Peptic ulcer prevention</td>
<td>Helicobacter screening and prophylactic treatment with proton pump inhibitors or H₂ antagonists seems appropriate for those with a past history of previous ulceration or concordant use of non-steroidal anti-inflammatory drugs.</td>
</tr>
<tr>
<td>Infection prophylaxis</td>
<td>Use of inactivated vaccines such as influenza is recommended. Live vaccines are contraindicated. A chest X-ray should be performed prior to treatment. More specific testing for tuberculosis may be indicated depending on history and chest X-ray results.</td>
</tr>
<tr>
<td>Malignancy prevention</td>
<td>Skin cancer rates are increased in patients using azathioprine. A full yearly dermatological survey is recommended. Exhort sun protection and cancer surveillance. Regular cervical smears are recommended. Eye protection may also limit cataract development.</td>
</tr>
</tbody>
</table>

**Improve neuromuscular transmission by inhibiting acetylcholinesterase**

Drugs that inhibit acetylcholinesterase include pyridostigmine, edrophonium (used only for testing) and neostigmine (for intravenous use in intensive care units only). These drugs take effect within minutes and last for hours. Although they are without long-term adverse effects, the efficacy of all acetylcholinesterase inhibitors is limited. As a sole drug they are not enough for most patients with generalised myasthenia gravis.

**Pyridostigmine**

Pyridostigmine is the first-line treatment for myasthenia gravis. It is a reversible inhibitor of acetylcholinesterase so increases acetylcholine stimulation of the remaining acetylcholine receptors. If there are insufficient acetylcholine receptors remaining to trigger a muscle action potential, extra acetylcholine from the action of the drug is not going to help. The underlying autoimmune state is not altered. It is often sufficient for ptosis alone, but not for diplopia or generalised myasthenia gravis. Benefit is often not sustained, possibly due to counterproductive upregulation of acetylcholinesterase and downregulation of acetylcholine receptors. The dose required is variable, as is gastrointestinal
tolerance. One approach is to start at 10 mg three times a day and titrate up to 60 mg 4-6 times daily. A 180 mg 'time span' preparation is available for nocturnal symptoms. In practice a degree of patient control of dosing and 'when required' use is often helpful.

Doses less than 480 mg daily rarely produce depolarising crisis. Increasing weakness after an increase in the pyridostigmine dose (when high doses are already being given) suggests deteriorating disease and/or a depolarising crisis. This may require treatments such as plasma exchange and a reduction in pyridostigmine dose. The presence of gastrointestinal adverse effects and fasciculations, clinically or on electromyogram, might suggest depolarising crisis. The patient must be hospitalised and the dose of pyridostigmine reduced while they are carefully monitored. Lack of improvement with edrophonium (which has a very short half-life) indicates that further pyridostigmine will not be useful.

**Immunosuppression**

The principal drugs used to suppress the immune system in myasthenia gravis are prednisone (a glucocorticoid) and azathioprine. The response to these treatments can take weeks to many months, with the maximal effect taking months to years.1,2

**Prednisone**

Prednisone or another corticosteroid is the primary immunosuppressant used in myasthenia gravis. Sustained improvement or remission can be achieved while patients remain on treatment. A typical course for generalised myasthenia gravis would use 1 mg/kg prednisone daily (0.5 mg/kg for ocular myasthenia gravis) until clinical control is achieved and then weaning either directly or by initial conversion to alternate daily dosage, with the determination of a maintenance dose by trial and error during a slow withdrawal of medication over many months. Deterioration in myasthenia gravis can occur in the first few weeks of treatment so the dose is often increased slowly. The mean time to maximal effect of prednisone in myasthenia gravis is six months - much longer than most expect.

**Azathioprine**

Azathioprine is used as a steroid sparing drug and additional immunosuppressant with prednisone. In a randomised trial, after three years of treatment, 63% of patients with myasthenia gravis taking azathioprine were off all prednisone, versus 20% taking placebo, but no effect was seen in the first year.2 Compared to the metabolic consequences of continued corticosteroids, the problems of azathioprine seem significantly less. However, the long-term consequences do include an increased risk of skin cancers and a small possible increase in the risk of haematological malignancies. About one-fifth of patients cannot take azathioprine due to rash, hepatitis, myelosuppression, nausea or vomiting, but this is usually evident within two weeks to two months. Some doctors routinely use azathioprine for patients with generalised myasthenia gravis still requiring more than 10 mg prednisone per day at six months, or if severe disease is obvious earlier.

**Other drugs**

If not using azathioprine, other steroid-sparing drugs used include mycophenolate mofetil, cyclosporin, methotrexate and cyclophosphamide. Experience with these drugs is generally derived from retrospective series. None of these have proven efficacy in randomised trials except for
cyclophosphamide, and choice of drug depends on age and competency of the patient plus local experience of the physician. In practice they are frequently used with apparent success, but like azathioprine the response is often slow.

Mycophenolate mofetil is a pharmacologically similar alternative to azathioprine but two recent randomised controlled trials failed to demonstrate benefit in myasthenia gravis. The duration of both trials was less than a year. As it works in the same pathway as azathioprine this may have been inadequate and it remains widely used.

Rituximab, a monoclonal antibody specific to CD20 (on B cells), or bone marrow ablation with autologous transplant are treatments of last resort.

**Remove or block autoantibodies**

Plasma exchange removes autoantibodies and intravenous immunoglobulin is thought to block autoantibodies. These treatments take effect within days, but only last weeks before treatment needs to be repeated. They have a key role in stabilising severe myasthenia gravis and in preparation for surgery, or in pregnancy.

Plasma exchange is expensive and only available in major hospitals. It requires good intravenous or alternatively central catheter access, but a central line increases the risk of infection. Intravenous immunoglobulin, a purified blood product, is also very expensive and is in limited supply. Its mode of action remains unclear.

**Thymectomy**

Thymectomy has a possible immunomodulatory role in the absence of thymoma. Results of a global randomised trial are awaited. The effect of a thymectomy appears to take years. Non-randomised retrospective data suggest there is an increased complete remission rate from thymectomy when it is performed within 2-3 years of the onset of disease. This treatment involves major surgery with midline sternotomy, although minimally invasive approaches are becoming available. Other than surgical complications there are no known long-term adverse effects.

Thymectomy for thymoma does not on average improve myasthenia gravis, but is required to remove the tumour.

**Drugs that worsen myasthenia gravis**

Neuromuscular blocking drugs used for intubation and muscle relaxation in surgery cause profound deterioration in myasthenia gravis with marked prolongation and severity of neuromuscular dysfunction. The diagnosis of myasthenia gravis should be considered if patients fail to breathe spontaneously or are weak after an anaesthetic.

Aminoglycosides such as gentamicin partially block the neuromuscular junction and dramatically worsen myasthenia gravis. Beta blockers have a generally mild adverse effect (adrenergic stimulus is mildly beneficial for myasthenia gravis) and the need to use them should be carefully considered. Anticholinergics of all types logically have a deleterious effect on the neuromuscular junction. In
practice a muscarinic anticholinergic such as propantheline is sometimes used to control the adverse effects of pyridostigmine on the gut. Many other drugs have been cited as provoking deterioration in myasthenia gravis or have myasthenia gravis listed as a contraindication to use in the product information. This includes tetracyclines and quinolones, which in practice are only occasionally problematic. Sedatives such as narcotics and benzodiazepines have no direct effect on the neuromuscular junction but obviously are contraindicated if hypercapnia or respiratory failure are a risk.

Conclusion

Myasthenia gravis is a readily treatable condition and many patients can expect to have little disability. It should be acknowledged that of the residual disability, a considerable amount comes from the treatment. Attempts to re-establish immune tolerance of the acetylcholine receptor to cure the condition have not yet borne fruit. No revolution in treatment is expected in the near future.

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*http://www.aspreva.com/clinical_trials.php#mg
† http://clinicaltrials.gov/ct/show/NCT00294658

References


5 Various Herbal Remedies For Myasthenia Gravis

Licorice

Licorice is one of the best herbal remedies for myasthenia gravis, ulcers, eczema, herpes, asthma, coughs, etc. It is being used for ages as an herbal cure for these diseases and conditions.

The herb is a suggested treatment of fatigue. The extracts of the herb is also used to cure viral hepatitis in Japan. Take 5 to 10 grams of the herb regularly. A few weeks of the treatment should be enough to reduce the problem to a great extent.

Kalawalla

2. Kalawalla For Myasthenia Gravis
Kalawalla is known to cure arthrits, Lupus, eczema psoriasis, Crohn’s disease, etc. It is one of the most preferred herbal remedies for myasthenia gravis as it basically treats chronic fatigue syndrome which is related to myasthenia gravis. It is an Asian herb, not much of scientific evidences prove it to be safe despite of the cures it has been showing. Therefore, there is no general dosage of the herb and it is best to take advice from a practitioner for the instructions on dosage of this herb.

**Horsetail**

Horsetail is best known to treat bone health and joint pains. It also treats fatigue and disorders causing fatigue to the body. In the condition of myasthenia the herb has a tendency to make the bones stronger by first making the muscles stronger. 2 to 3 grams of the herb prepared as tea in plain water, should be taken 3 times a day regularly as long as the chronic fatigue lasts. There are no known side effects of the herb.

**Hawthorn**

Hawthorn is usually used for treating heart difficulties. The berries of hawthorn are beneficial for myasthenia gravis. It has strengthening properties for the heart and the muscles. You must take 300 to 600 mg of the herb three times a day. Take the dose regularly for 5 to 6 months. There are no side effects of the herb when taken as advises. However, if you’re
pregnant, or you’re suffering from kidney or liver problem it is best to consult with a physician first.

*Wood Betony*

The herb is well known as *Bishop wort, betony and purple betony as well*. It is a well-known remedy for fatigue caused due to muscle and bone weakness. It is being used for centuries to get rid of arthritis and gout and has medicinal properties to cure myasthenia gravis from the root. The dosage is not fixed as same for every individual. **It depends upon the level of the muscle weakness and how much of medicine** can the body take. It is best to consult with a physician for the dosage of the herb.
The immune system which includes the thymus gland, lymph nodes, bone marrow, spleen, tonsils, adenoids, appendix, Peyer's Patches are all connected, and all are affected by color and sound. Care then is needed daily to nourish ourselves with appropriate colors for us - and to be very aware that all sounds affect the Thymus gland and therefore, that Chakra.

Renee Brodie, The Healing Tones of Crystal Bowls

The Thymus Chakra, Immune System & Sound Healing

"What is the Thymus gland? What is its function? its connection to the Immune System?" you might have asked.

The Thymus gland, at the forward base of the neck, plays a key role in the immunological defense system, stimulating production of white blood cells that fight disease and infection. The thymus gland is fairly large at birth and continues to grow until adolescence, when it begins to shrink. By middle age the thymus is much smaller, but it is still an important factor in the immune system. During the first few weeks of life, T-lymphocytes created in the thymus migrate to the blood stream and colonize lymph nodes through the body. These later begin to manufacture powerful antibodies vital for immunity.

According to Dr. John Diamond's Your Body Doesn't Lie book, "In the second century, Galen gave the name Thymus to the pinkish-grey two-lobed organ in the chest because, it is said, it reminded him of a bunch of thyme. But the thyme plant itself was so-named because it was burned as incense to the gods. Thymus (Greek) then was a rising up of smoke, a burning of incense, a sacrificing up to the gods - all taking place in the chest, the inner altar. It was aspiration, songs of praise, spirit, and the putting out of love. It was the breath-soul, on which depended a man's energy and courage. So the Thymus is the Seat of Life Energy.

Modern medical science has not always understood the function of the thymus gland... Now, medicine recognizes the thymus gland is closely related to the immune system, stress, and general well-being.

Earlier this century it was thought the Thymus gland had no function beyond puberty. It simply atrophied... a delusion fostered by finding during autopsy that the gland was quite small. It is now known that in response to acute stress such as infection, it can shrivel to half the size within 24 hours. Earlier, doctors thought that after puberty the Thymus had no useful function, and in many young children it was excised! This destroyed a vital part of their Immune System, allowing them to become susceptible to infections and chronic disease. Later in the 1950s and after research it became clear that children naturally have large thymus glands and some dying from serious illness or great physical stress had died before the gland had time to shrink.

After puberty it diminishes in size because it is no longer concerned with growth. Any further shrinkage is due to stress and other factors. The dramatic shrinkage of the thymus gland in a person undergoing stress is not fully understood. Within a day of severe injury or sudden illness, millions of lymphocytes are destroyed and the thymus shrinks to half its size. This part of the general reaction to stress described by Dr. Hans Seyle. We also know that that the thymus continues to secrete hormones and T cells until late in life. This role is known as immunological surveillance so another function has been added to the so-called "inactive" thymus gland.

It is only recently that the immunological functions of this gland have been understood. It has the role of Master Controller that directs life-giving and healing energies of the body, and is strongly influenced by an individual's physical environment, social relationships, food and posture."
“How are we then able to heal the overstressed Thymus gland?”

According to Renee Brodie, “Our immune system functions more effectively when we are happy and creative, and affects every cell in our body when its energy flow is harmonious. When we feel out-of-sorts, unwell, the cells of the immune system do not "ring true", and this will affect every part of us. We see now how important the Thymus chakra is to our well-being.

We know that through the newly-awakened Thymus chakra, we can absolutely work towards balancing this energy center and therefore the immune system, until it is one hundred percent perfect so that we are no longer sick.

What we need to do is tune into the individual and work together to find their special note for the Thymus, to sound it with loving care and reverence, for a certain number of days. This note may very well be the note F of G, but not necessarily.”

“Where then does Sound come into healing the Thymus Chakra and Immune System?”

According to Renee Brodie, “The Thymus chakra responds to all sounds made by you, and any with which you are in contact. There is much sensitivity in the area of the Thymus chakra because of the bony structure that overlays it. When you sing or shout, pray or chant, or listen to music, whether it be recorded or played live by many musicians, the Thymus chakra is stimulated. From here is directed renewed energy as a result of the sound.

All sounds, in one way or another, resonate with this chakra and in the body. Now that you are aware of the Thymus chakra, it is so necessary to make joyful, positive sounds instead of "sour" notes of anger or negativity. Awareness of with which sounds one is resonating is very important. Think about the words that we use. Think about the words and sounds that are produced by people who are with you. What are they saying? Are they words of love and caring, of honesty and truth? Is there joy in the sounds that you are using and hearing? Is your personal sound critical and deadening to others? Are you saying things that are uplifting? Do the sounds of everyday life resonate to your beingness? Listen to yourself and learn. You are in charge, one hundred percent, of the sounds that you live with and make, not of the "outside" sounds but of your own sounds, the sounds in your home, office and healing centers, the sounds that you make to your family and friends.

From now on we can all take a little care "cleaning up" the sounds that we make, even to the extent of listening to the tones of our own voices, creating a more beautiful, resonant sound. Bless yourselves, and ask for perfection in creating a blissful, caring and beautiful surrounding of sound.

The Thymus chakra responds to sound, but the whole body, mind and spirit needs peaceful and lovely sounds to create a space in which we can move forward into the full Light.”

Through the use of Holographic Sound Healing techniques, all the seven major body chakras plus one major chakra are cleared, balanced and energized. The plus one major chakra is an eight chakra called the Thymus chakra which we have discussed here because of its importance in the proper functioning of the Immune System and which is affected greatly during Holographic Sound Healing as the other seven major chakras are healed.

According to Chinese medicine, The Heart chakra controls the heart and the thymus gland, so it is important to focus on this Heart point during meditation to strengthen these organs.
THE FOUR ENERGY THUMPS

Perform daily to boost your immune system, to increase your strength & vitality, to overcome obstacles easier, and to feel more alert.

#1: Under Eye Points (Cheekbones)

#2: K-27 Points (Collarbones)

#3: Thymus Point

#4: Spleen Neurolymphatic Points

For each step, tap or thump the points while breathing in through the nose and out through the mouth about three times.

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The 8 fork Harmonic Spectrum Set plus the 5 fork Sharps Set make a complete octave in the Pythagorean Scale.

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I kindly thank John Beaulieu for his research and development of the Harmonic Spectrum tuning forks.
Desiré is the Professor Emeritus of IMUNE. IMUNE is an accredited and legally registered medical university in Europe.

Since 1995 IMUNE has been offering medical education in a variety of subjects to defend and perpetuate Natural Medicine. There are many small minded people being driven by the SINthetic chemical companies to destroy Natural Medicine as a viable choice in Medicine. IMUNE has offices in Switzerland, Mexico, Dubai, Budapest, England, and the British Virgin Islands. The small petty minded picayune minions of the chemical companies constantly attack with their anal retentive biased short sided views.

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