Stem Cells & CAM Newsletter

Reporting New Treatments for "Untreatable" Diseases

By introducing promising new science-based research and therapies, our mission is to continuously present many excellent reasons for you to hope again.

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by James Braly, MD
Associate Medical Director,
Director of Complementary & Alternative Medicine
Stem Cell Center of North America, LLC

In this issue:

INTRODUCTION:

With each issue of *Stem Cell & CAM Newsletter* we focus on promising new stem cell research and therapies together with complementary and alternative medicine (CAM) for so-called *"untreatable"* medical conditions. Many of our readers or their loved ones are now suffering from these chronic illnesses, illnesses for which conventional doctors unfortunately have no lasting solutions, and as a consequence, little or no hope to offer. Absence of solutions devoid of hope elicits an all too familiar mantra,

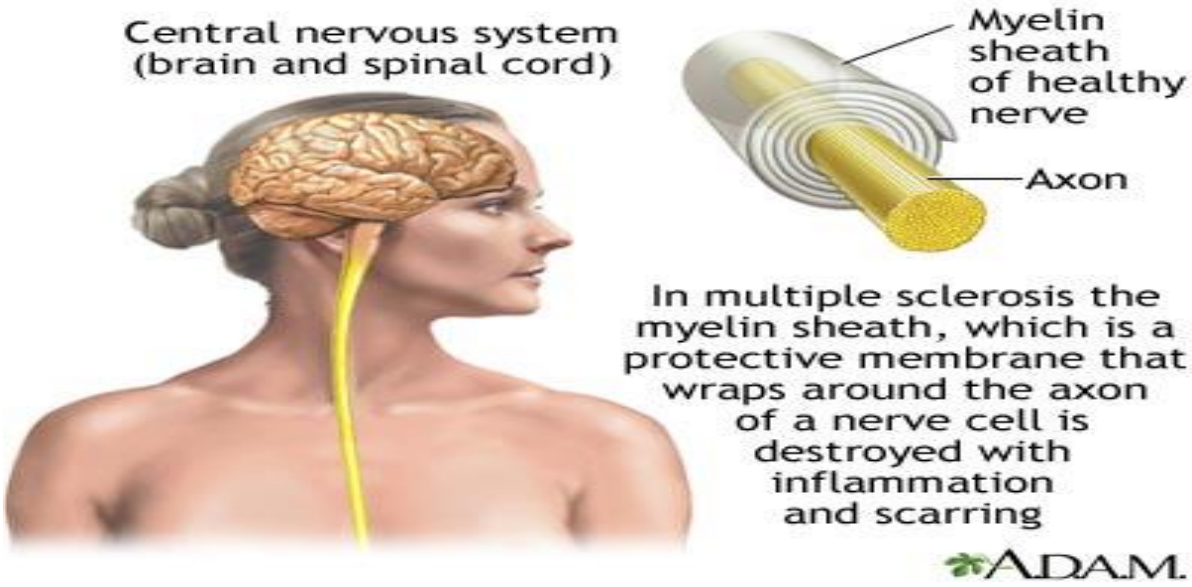
"Sorry. Wish we could help, but there's very little that modern medicine can offer you."

By introducing promising new science-based research and therapies, our mission is to continuously present many excellent reasons for you to hope again.

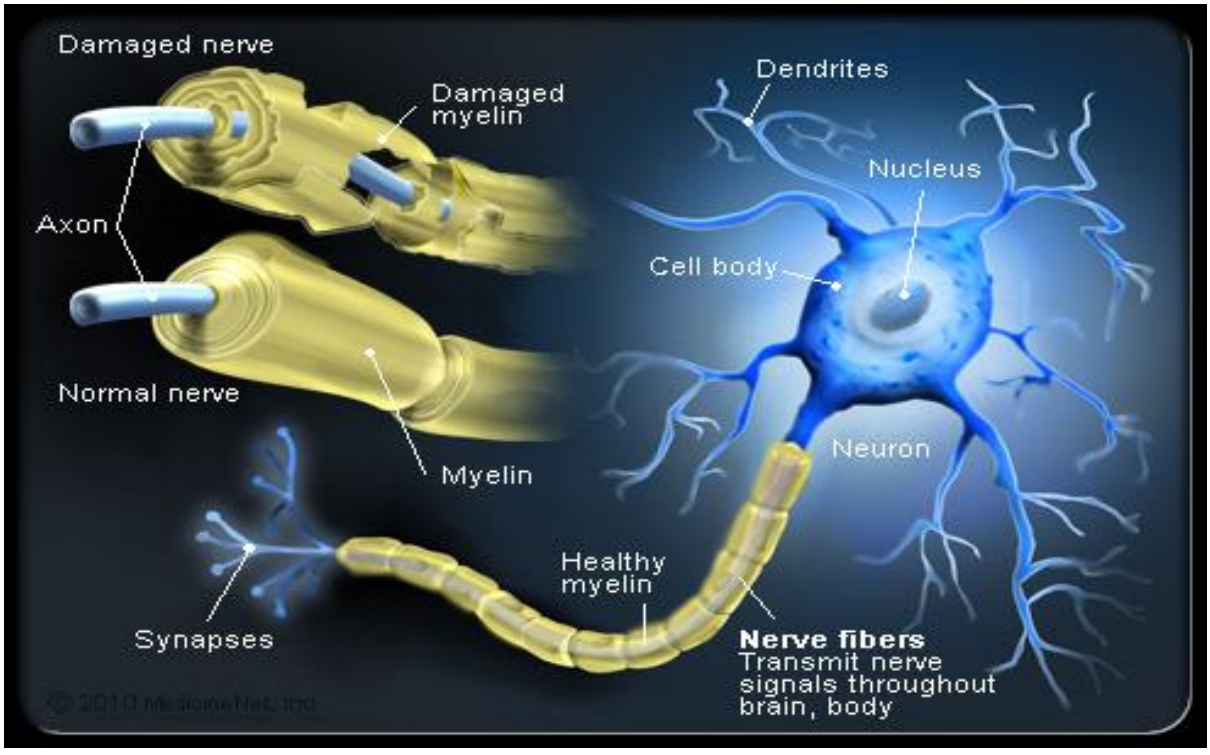
Treatable "*Untreatable*" Disease of the Month:

Multiple Sclerosis

What is Multiple Sclerosis?



Multiple Sclerosis (MS) is an ***autoimmune disease*** of the brain and spinal cord in which one's own immune cells attack, damage and destroy ***myelin sheaths***, *the fatty substance that surrounds and protects nerves (see drawing below).* This destruction of myelin is called ***demyelinization***. Restoration of myelin is called ***remyelinization***.



Once destroyed, myelin is then replaced by scar tissue. This scarring, called ***sclerosis***, slows down, disrupts and short-circuits electrical signals from the brain and spinal cord nerves. As a result, MS symptoms appear *(see MS symptom chart below)* when brain and spinal cord nerves cease to communicate properly with other parts of the body.

Multiple Sclerosis occurs in the brain and spinal cord as a result of the ***blood brain barrier (BBB)*** becoming "leaky" *(The BBB is a microscopically thin layer that acts as a highly selective, protective filter between the bloodstream and the brain-spinal cord nerve cells).* The leakiness allows destructive immune cells from the blood to easily pass through and into brain and spinal cord tissue where they don't belong. Once inside, these activated immune cells seek out and destroy myelin sheaths and damage the nerves inside.

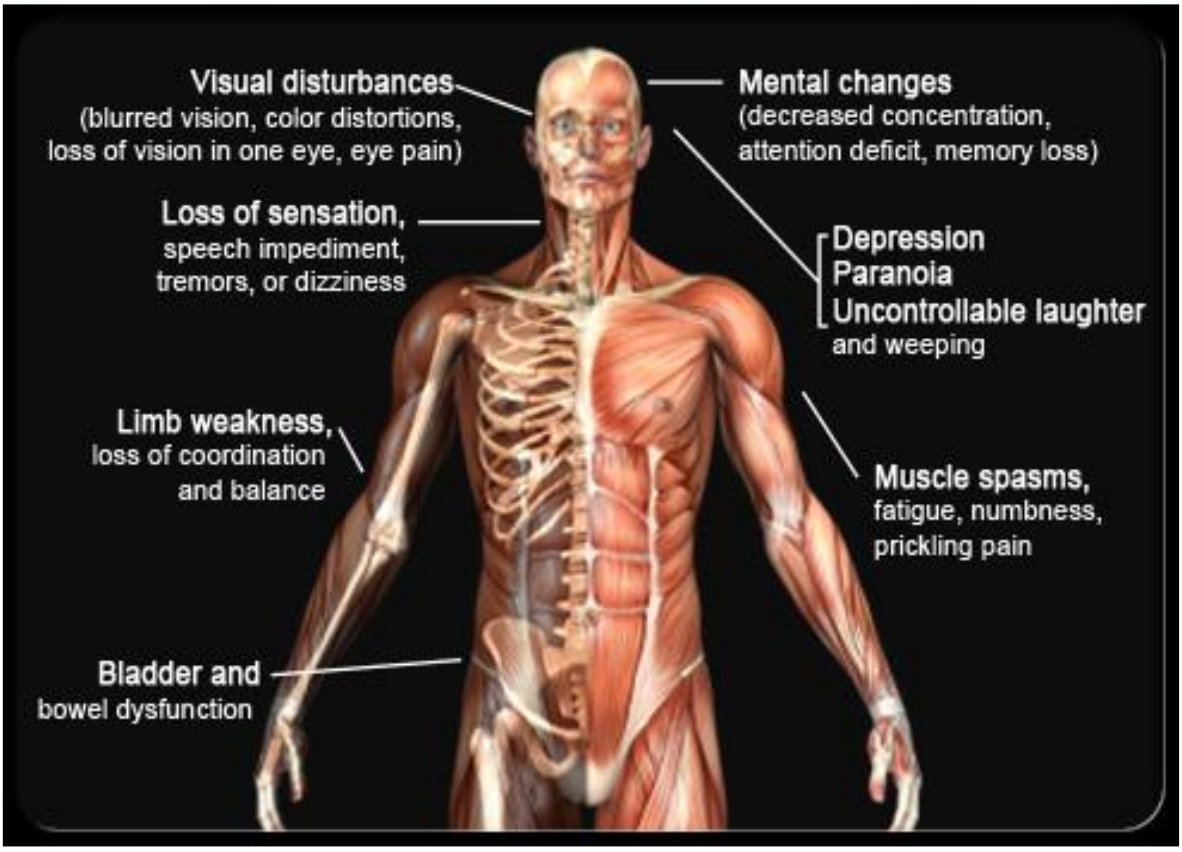
MS is an autoimmune disease. So, what is an autoimmune disease?

An autoimmune disease is a disorder that occurs when the immune system, instead of protecting you from disease and helping to fight and overcome illness *(its normal function)* begins targeting and destroying normal, healthy body tissues. For example, the body's immune system makes large numbers of proteins called antibodies to help the body fight off infections. In many cases, however, antibodies are produced that are directed against one's own tissues. These are referred to as ***autoantibodies***. A study just released (Jan 2012) by the National Institute of Health shows that immune systems of at least 32 million Americans are targeting their own tissues with autoantibodies.

According to the National Institute of Health about 400,000 Americans suffer from Multiple Sclerosis. Yet, MS is only one of over 100 different autoimmune diseases affecting 24 million Americans. Other common autoimmune diseases include insulin-dependent diabetes, thyroid disease, rheumatoid arthritis, lupus, Crohn's disease, ulcerative colitis, and one very common condition I've spent years studying, writing about and treating, ***celiac disease*** *(NOTE: A recent study reports that at least 11 percent of MS patients suffer from celiac disease and improve on a gluten-free diet [see below]. For more information about celiac disease and its the role in many of the conditions we treat with stem cells, see Ron Hoggan's and my book* ***Dangerous Grains*** *- currently available at both www.amazon.com and www.barnesandnoble.com).*

What causes your immune system to stop protecting and healing and begin attacking and destroying is unknown. One popular theory is that "foreign invaders" made up of bacteria, drugs and/or chemical contaminants trigger this self-destructive change. Another related theory is that small fragments of food protein called ***peptides,*** found in commonly eaten foods like wheat, milk, and soy, *when eaten by genetically predisposed people*, trigger ***"immune system confusion"*** whereby the immune system can no longer distinguish between the food peptides *(e.g., peptides in wheat and/or milk)* and one's own healthy tissues containing similar-looking peptides. Confused and disoriented, immune cells end up aggressively attacking and destroying both.

SIGNS & SYMPTOMS OF MS



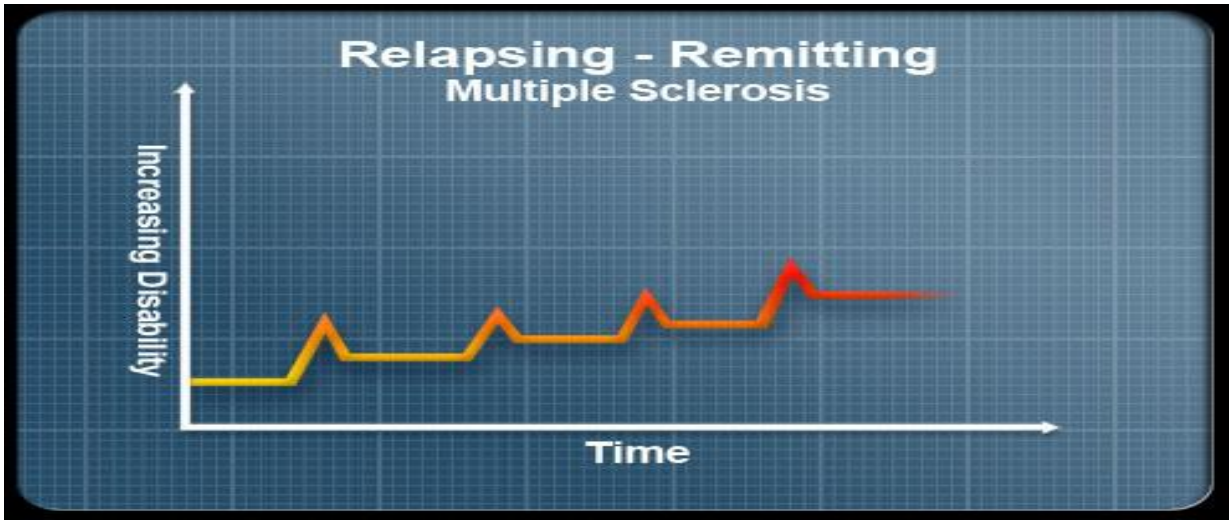
MS symptoms progress gradually, varying in intensity because different areas of brain and spine are being attacked in each person. With ***relapsing-remitting MS*** *(see below)* each attack or flare-up may produce different symptoms as new areas of the nervous system are affected. Although damage to the nerve's myelin is always involved, the pattern and combination of these MS symptoms is unique to each individual. ***Unfortunately, for most victims MS is a downward spiral of disability.***

Eventually many MS patients become wheel-chair bound.

Understanding Three Common Types of Multiple Sclerosis

Although individual experiences and symptoms with MS vary widely, doctors and researchers have identified three common types of MS. These three types are important because they help predict disease severity as well as response to treatments.

1) Relapsing-Remitting Multiple Sclerosis (RRMS)



80-90% of people with Multiple Sclerosis suffer from relapsing-remitting MS (RRMS).

As a general rule, RRMS patients are the best responders to stem cell and CAM therapies.

80-90 percent of all MS victims have the ***relapsing-remitting type of MS (RRMS).*** Here, MS symptoms first appear in most victims in their 20's and 30's. What follows are periodic attacks or flare-ups called ***relapses,*** which in turn are followed by partial or complete recoveries called ***remissions***. The pattern of brain and spinal cord nerves affected, severity of each relapse, degree of each remission (partial or complete) following each attack, and the time between relapses vary widely from person to person.

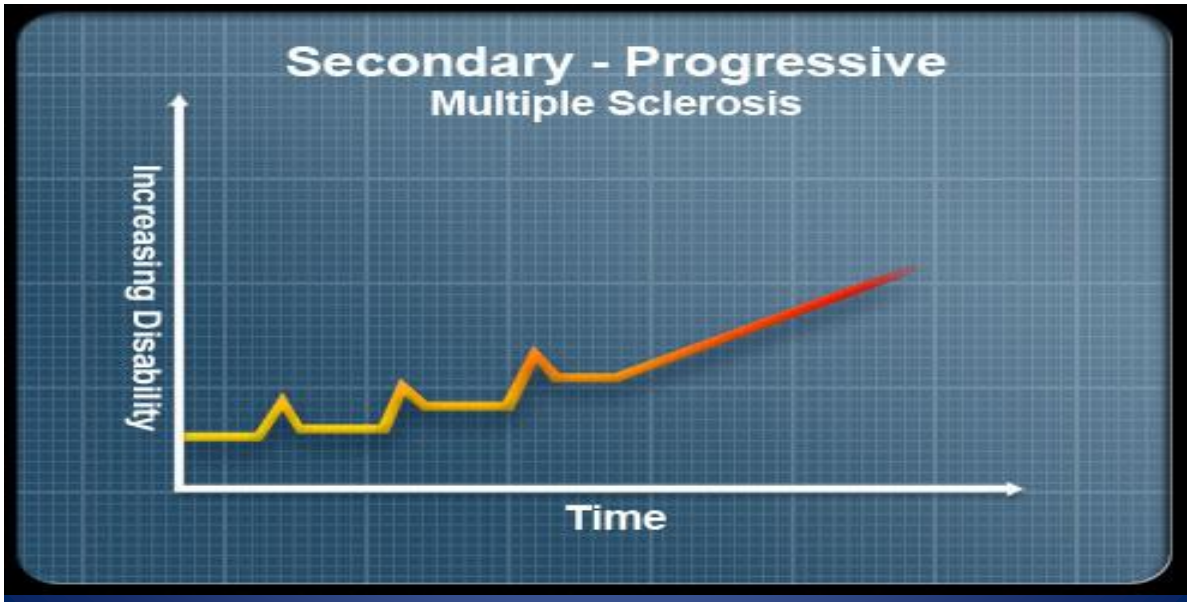
What Happens During a Relapse?

When you experience a ***relapse*** *(also known as an attack or flare-up),* it's because new damage in your brain or spinal cord is disrupting nerve signals. With new damage you might notice new symptoms and/or the return of some old ones. Periods of relapse alternate with periods of reduced or absence of symptoms called ***remissions***. By definition, a "true" relapse must last for at least 24 hours, can then last for days, weeks or months, and happens at least 30 days or longer after any previous relapse.

***If you suffer from RRMS, the good news* is that over time your symptoms do improve.** Many RRMS patients recover from relapses on their own without medical treatment.

***The bad news with RRMS* is that most people conventionally treated with prescription drugs and other traditional supportive, symptom-oriented therapies will eventually enter into the *secondary progressive MS phase*.**

2) Secondary Progressive Multiple Sclerosis (SPMS)



Eventually, most people with relapsing-remitting MS (RRMS) will enter the secondary progressive phase of MS (SPMS).

Transition to SPMS typically occurs between ten and twenty years after the initial diagnosis of RRMS.

SPMS is more challenging to treat than RRMS, but with ***an integrative approach*** *- one that includes both stem cell and CAM therapies - SPMS becomes treatable.*

After living with relapsing-remitting MS for many years, **most MS patients go on to develop secondary progressive MS (SPMS)**. The transition to SPMS typically occurs between ten and twenty years after the diagnosis of RRMS. As you can see in the chart above, SPMS symptoms steadily get worse, eventually reaching a state without relapses or remissions. At this later stage, SPMS begins to resemble the more serious, disabling type of MS called ***primary progressive MS*** *(see below).*

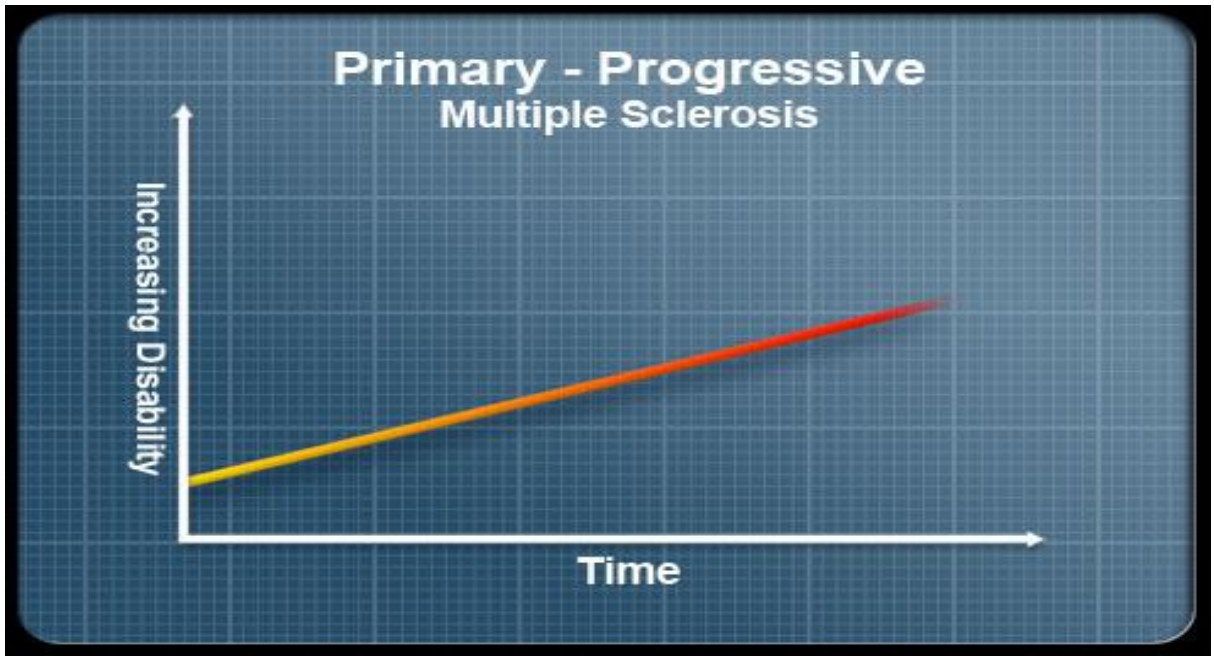
It's unclear exactly why Multiple Sclerosis so often makes the transformation from RRMS to SPMS. However, a few things we do know about the process:

- The older a person is at the time of the initial RRMS diagnosis, the shorter the time for RRMS to transform into SPMS.

- RRMS individuals with ***incomplete*** recovery from flare-ups generally convert to SPMS sooner than those RRMS patients who recover ***completely*** from each relapse.

Secondary progressive MS is more challenging to treat than relapsing-remitting MS, but with an ***integrative approach*** - one that includes both stem cell and CAM therapies - SPMS is treatable.

3) Primary Progressive Multiple Sclerosis (PPMS)



With primary progressive Multiple Sclerosis (PPMS), from the very first day of diagnosis MS symptoms steadily get worse without any periods of improvement.

About ten percent of all MS patients have PPMS.

Stopping the downward spiral of PPMS with stem cells alone is usually not enough. A much more aggressive ***integrative treatment protocol*** *is required, involving stem cells* ***and*** *a strict regimen of CAM therapies.*

As you see from the chart above, PPMS symptoms slowly, continuously worsen from the time of the initial diagnosis. Unlike RRMS and earlier phase SPMS there are no well-defined relapses and hence no remissions. About 10% of all MS patients are diagnosed with PPMS.

Several characteristics of PPMS distinguish it from RRMS and SPMS:

- People with PPMS are usually older at the time of diagnosis - average age 40.
- Roughly equal numbers of men and women develop primary progressive MS. In RRMS and SPMS, women outnumber men almost three to one.
- PPMS usually leads to significant disability earlier in the disease process than RRMS.

- Perhaps the most disturbing difference with PPMS is the very poor response to conventional prescription drug and other symptom-oriented treatments. So far, no medication offers a cure, only temporary symptom relief at best.

Halting the downward progression of PPMS with stem cells alone is not enough. Together with stem cells, a variety of science-based complementary and alternative treatments (CAM) must also be aggressively pursued *(See below for discussion of key CAM therapies).*

Who Are at Greatest Risk of Getting MS?

- ✓ **Prevalence** - One in 700 Americans, totaling over 400,000 people, get MS.
- ✓ **Genetics** - People with family histories of MS are at much greater risk of MS. For example, siblings have a three to five percent chance of developing MS if a brother or sister is affected *(this is 35 times the normal risk of getting MS),* while identical twins have a 40 percent chance *(280 times the risk).*
- ✓ **Gender** - RRMS and SPMS *(90% of all MS cases)* affect women 3 times as frequently as men.
- ✓ **Race** - Caucasians are affected twice as frequently as other races.
- ✓ **Age** - MS commonly begins between ages 20 and 40, but its onset can occur at any age.
- ✓ **Nursing home and other long-term institutionalized patients** are at increased risk of MS.
- ✓ **People living in climates furthest from the equator**, those with shortest summers and longest, darkest winters *(e.g., Scotland, Western Ireland, Canada and Alaska)* are at greater risk than those living closer to the equator *(e.g., Central America, Caribbean islands).*

Multiple Sclerosis affects over 400,000 Americans and some 2.5 million people worldwide, so not surprisingly there are famous people with MS. Here are two you may recognize:

Neil Cavuto - Senior Vice President of Business News for Fox News Corp *(Photo courtesy of Fox News)*
Ann Romney - Wife of former Massachusetts governor and 2012 presidential candidate Mitt Romney

What Are Some of the Suspected Causes of Multiple Sclerosis?

We know a lot about who are at an increased risk of getting MS *(see above),* but no one knows for sure what causes it. Tantalizing clues have ignited a boat load of research, but there are no definite answers yet. Some of the more tantalizing research that we have integrated into our treatment program for MS include:

- **Stem cell insufficiency**
- **Vitamin D insufficiency, lack of exposure to sunlight**
- **Fish and fish oil insufficiency in combination with high animal fat diets**
- **Glutathione insufficiency**
- **Celiac disease, sensitivity to gluten** *(a protein found in wheat, rye, and barley)*
- **Viruses** - There is no good evidence MS is a communicable, viral disease.
- **Vaccines** - Extensive research has essentially ruled out vaccines as a cause of MS.

CONVENTIONAL THERAPIES FOR MS

No conventional therapy today offers a cure for MS. None offer hope that the downward spiral of disability can be halted and reversed.

Conventional treatments for MS treat only the ***symptoms*** *of the disease, not the underlying* ***causes****.*

Conventional therapies are incapable of preventing demyelinization, promoting remyelinization or putting a permanent stop to the disease process.

Commonly prescribed medications for MS include **Copaxone** *(used to decrease number of relapses in RRMS patients),* **Zanaflex** and **Baclofen** *(used to help relieve muscle spasms),* and the interferon drugs **Avonex, Betaseron** and **Extavia** *(to help decrease number of relapses and slow down the progression of physical disability in RRMS patients).*

All medications presently prescribed for MS share the following attributes:

- ✓ Have the ability to provide ***temporary relief*** of MS symptoms.
- ✓ Like most all prescription medications, are often associated with ***side-effects.***
- ✓ Are ***expensive.***
- ✓ Offer ***no cure*** for MS.

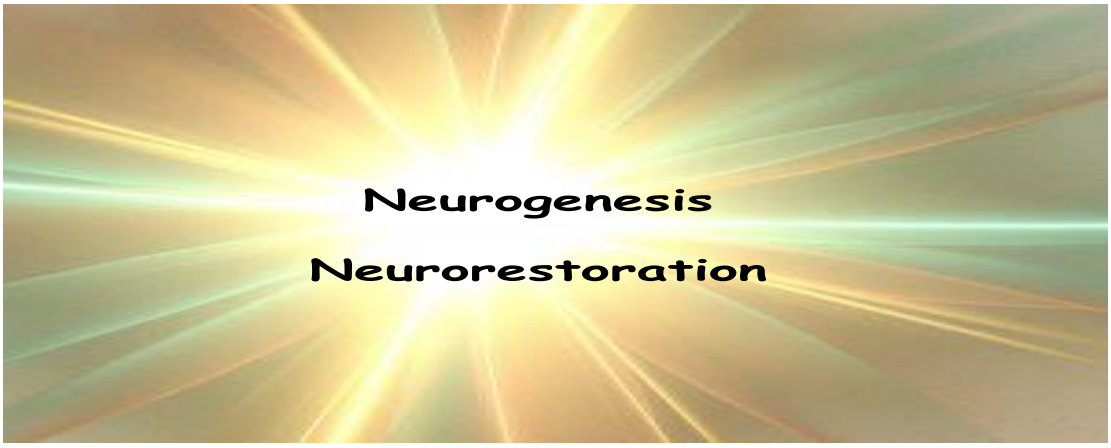
Long-approved, frequently used conventional treatments are limited in their effectiveness, given that none deal with the underlying ***causes*** of MS. At best they treat only ***symptoms. Tragically, this remains the fundamental failing of today's conventional medicine.***

Consequently, no conventional treatment is capable of preventing demyelinization, promoting remyelinization or putting an end to the tragic downward spiral of MS.

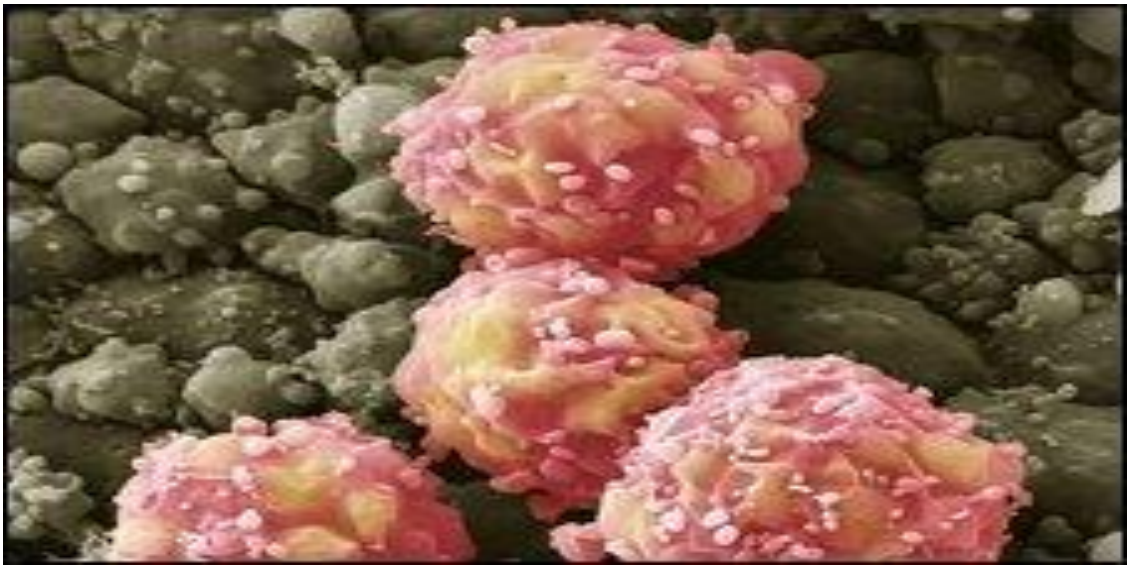
Clearly, there is a urgent need for new and better approaches for treating multiple sclerosis.

In keeping with our mission statement, what follows are some of the most promising and hopeful "new and better approaches."

It begins with neurogenesis, neurorestoration and stem cells.



Neurogenesis is the ability of the nervous system to create and grow new nerve cells. This involves the presence and action of ***stem cells.*** ***Neurorestoration*** is the ability of the nervous system to repair damaged, diseased nerve cells. This involves the presence and action of ***stem cells.***



Umbilical cord blood stem cells

Umbilical cord blood from healthy, Blood Type O mothers who have just given birth to full-term, healthy babies offers one of the safest and most effective sources of adult stem cells.

The first successful stem cell therapy took place in 1989 when a French researcher took ***umbilical cord blood*** *from a healthy newborn and gave it to his 5-year-old sibling suffering from a severe form of anemia that causes bone defects. Since then, reportedly well over 14,000 umbilical cord blood stem cell therapies between unrelated patients have been safely performed.*

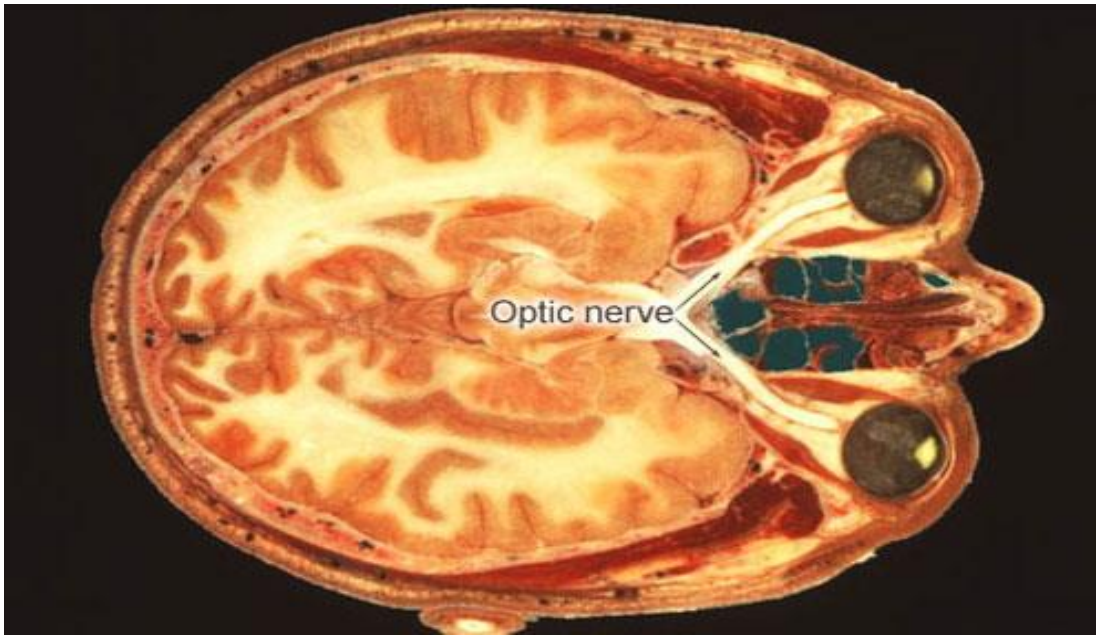
Stem Cell Therapy for MS

Introducing Horatia, a primary progressive MS (PPMS) patient treated at our center with 60 million umbilical cord blood stem cells *(Note: To protect her privacy, the name Horatia is fictitious).*

"I expected to get better, but was surprised it happened so fast."
Horatia

Horatia's PPMS affected both optic nerves, initially causing very blurred vision. By the time Dr. Fernando Ramirez and staff saw her for treatment, however, she was **completely blind in both eyes.**

Note: Optic nerves transmit visual messages from the back of the eyes to the brain *(see MRI of optic nerves below).* MS often targets and destroys the myelin surrounding and protecting the optic nerves. The optic nerve disease process, frequently leading to blindness, is called ***optic neuritis***.



When Horatia arrived for stem cell treatment, not only was she blind in both eyes, she also suffered from painful electric shock sensations radiating down her spine.

Additionally she had marked weakness with lack of coordination in both hands; as a result she was unable to hold a glass of water, write, or move fingers in either hand.

Two weeks later: Two weeks after receiving 60 million umbilical cord blood stem cells - administered both intravenously and by spinal tap - she started to move her fingers again and was able to see "shadows" with both eyes instead of total darkness.

Three months later: Horatia reported seeing "shapes and colors" for the first time in years. With assistance she started writing again. The electric shock sensations down Horatia's spine have disappeared.

She reports, ***"I expected to get better, but am surprised it happened so fast!"***

Stem cell treatment of MS worldwide:

As of 2009 reportedly there were 400 Multiple Sclerosis patients worldwide who had been treated with stem cells. Research up to this time demonstrated that patients with the highly active forms of relapsing-remitting MS (RRMS) responded best to treatment (Kraft G et al. *Multiple Sclerosis Quarterly Report*, 2009 - Summer edition).

Medical researchers from Northwestern University's Feinberg School of Medicine reported **reversing neurological symptoms of 21 RRMS patients** by infusing their own immune stem cells back into their bodies. The patients continued to improve clinically for up to 24 months after the stem cell treatments, and then stabilized. They experienced improvements in areas commonly affected by MS including walking, balance and coordination, leg and arm strength, vision and incontinence. **Three years after being treated with stem cells, 17 of the original 21 RRMS patients had improved on tests of their MS symptoms, 16 had experienced no relapse and none of the 21 had gotten worse** (Burt R. et al. *The Lancet - Neurology*, March 2009).

"This is the first time we have turned the tide on this disease . . . the first study to actually show reversal of [MS] disability . . . some people had complete disappearance of all symptoms."

Richard Burt, M.D., Chief of Immunotherapy for Autoimmune Diseases
at the Feinberg School of Medicine

Complementary & Alternative Medicine Combined with Stem Cells to Treat MS - *An "Integrative" Approach*

By combining stem cell therapy with science-based CAM, Stem Cell Center of North America practices **Integrative Medicine.**

NOTE: CAM stands for ***Complementary and Alternative Medicine***, a group of diverse therapies and products that are neither part of conventional medicine as taught in U.S. medical schools, nor generally available at U.S. hospitals. This practice of using unconventional therapy together with conventional medicine is called *"complementary and alternative medicine."*

NOTE: ***Today CAM is one of 27 medical subspecialties officially recognized by the National Institute of Health.*** CAM is becoming increasingly popular worldwide; for example, two-thirds of MS patients in South Australia are treating their MS with CAM in combination with conventional therapies (Leong et al. *Complementary Ther Med.* August 2009).

Together with stem cell therapy,* what follows are some of our preferred CAM therapies for treating MS patients** ***(Note: lack of space and time prevents us from presenting them all, but these are among the best).

1) American Heart Association Low-Fat Diet Combined with Oily Fish *(baked or broiled, not fried)* and Fish Oil Supplements

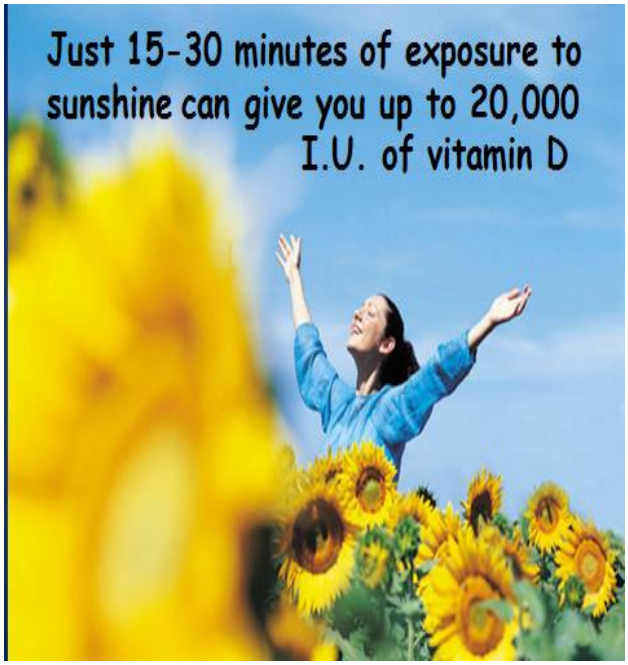
In addition to stem cell therapy, RSCI recommends that all MS patients follow a modified American Heart Association low-fat diet together with 2 to 3 weekly servings of oily fish *(baked or broiled, not fried)* ***and daily fish oil supplements.***

(Today's patients each get their PERSONAL diet from Dr. Braly)

THE SCIENCE:

- **People living on the coast of Norway and throughout Japan have low incidences of MS. These people eat large amounts of seafood, including oily fish, rich in anti-inflammatory, brain and spinal cord-nourishing omega-3 fatty acids.**
- **Norwegians who live inland in farming communities consume large amounts of saturated fats** *(e.g., red meat, milk products and fried foods)* **and smaller amounts of seafood. They have a significantly higher MS rate than fish-eating Norwegian coastal communities.**
- **Excessive consumption of saturated fats** *(e.g., red meats, milk products and fried foods)* **appears to trigger the onset of MS. Some MS patients report having experienced permanent remission by greatly reducing their consumption of saturated fats.**
- **Subsequent studies have shown that high animal fat and dairy diets are associated with MS, while diets emphasizing lots of unfried oily fish, fruits and vegetables are associated with a significantly lower incidence and prevalence of MS.**
- **A 2005 study showed that three grams of fish oil supplements daily combined with an American Heart Association low-fat diet reduced relapse rates and improved the mental and physical quality of life in MS patients.** The authors of this double-blind, randomized one year study concluded that a low fat diet combined with fish oil supplementation may complement other therapies and improve the quality of life of those suffering from MS. (Weinstock-Guttman B et al. *Prostaglandins, Leukotrienes, Essential Fatty Acids*. 2005 November).

2) Vitamin D Supplements and Sunshine for MS:



In addition to stem cell therapy, RSCI recommends that all MS patients take high dose vitamin D3 supplements daily, expose their skin to direct sunlight when possible, and be blood tested regularly in order to achieve and maintain optimal vitamin D blood levels.

Long term, high dose vitamin D3 supplements dramatically reduce the number of MS relapses.

MS patients did best with vitamin D3 supplements when they maintained optimal vitamin D blood values as determined by periodic lab tests.

Far more lives are lost to diseases caused by a lack of sunlight and vitamin D than lives lost to diseases caused by too much.

THE SCIENCE:

- Vitamin D deficiency is very common in many parts of the world, including USA and Canada.
- Vitamin D deficiency is associated with over twenty-five different diseases, **including MS.**
- MS rates are lower in areas with more sunlight and higher consumption of vitamin D-rich fish.
- People with low blood levels of vitamin D levels are at increased risk of developing MS and at risk of an increased frequency of relapses once they get RRMS.
- High blood levels of vitamin D are associated with reduced risk of MS and fewer relapses.
- Long-term, high dose vitamin D3 supplements dramatically decrease relapses.
- MS patients tend to have low blood levels of vitamin D just before worsening of symptoms and higher blood levels of vitamin D just before periods of improvement.
- Vitamin D suppresses and weakens autoimmune diseases in animal studies, including autoimmune encephalomyelitis, the animal version of human MS.
- **Supplementation with vitamin D plus calcium for 52 weeks in human RRMS subjects resulted in fewer relapse events and persistent reduction in the immune cells known to cross the blood brain barrier and destroy myelin** (Burton JM et al. *Neurology*. 2010 April).
- **High dose oral vitamin D3** *(average 14,000 IU daily for one year)* **reduced the number of MS relapses compared to the year before by a whopping 41 percent compared to only 17 percent reduction in those RRMS patients on low dose vitamin D3** *(1,000 IU daily)*. **The researchers also measured the concentration of vitamin D in the blood, thought by many to be the best indicator of a person's vitamin D status. A concentration of less than 50 units** *(nanomoles per liter of blood)* **is now considered inadequate. In this 2009 study, MS patients did best if vitamin D blood levels reached and were maintained around 100 units. Importantly, although authorities warn that very large doses of Vitamin D over an extended period may cause symptoms** *(nausea, vomiting, loss of appetite, muscle weakness, weight loss, and in rare instances kidney stones),* **the high dose Vitamin D3 given in this study daily for one year was <u>not</u> associated with any significant side-effects** (This path breaking/breathtaking study was presented at the 2009 annual meeting of the American Academy of Neurology).

Too Little Sunlight, Too Little Vitamin D, Too Much Multiple Sclerosis.

As we learned above, lack of sunlight is closely linked to an increased risk of MS. When ultraviolet rays from the sun hit human skin, a reaction takes place that enables skin cells

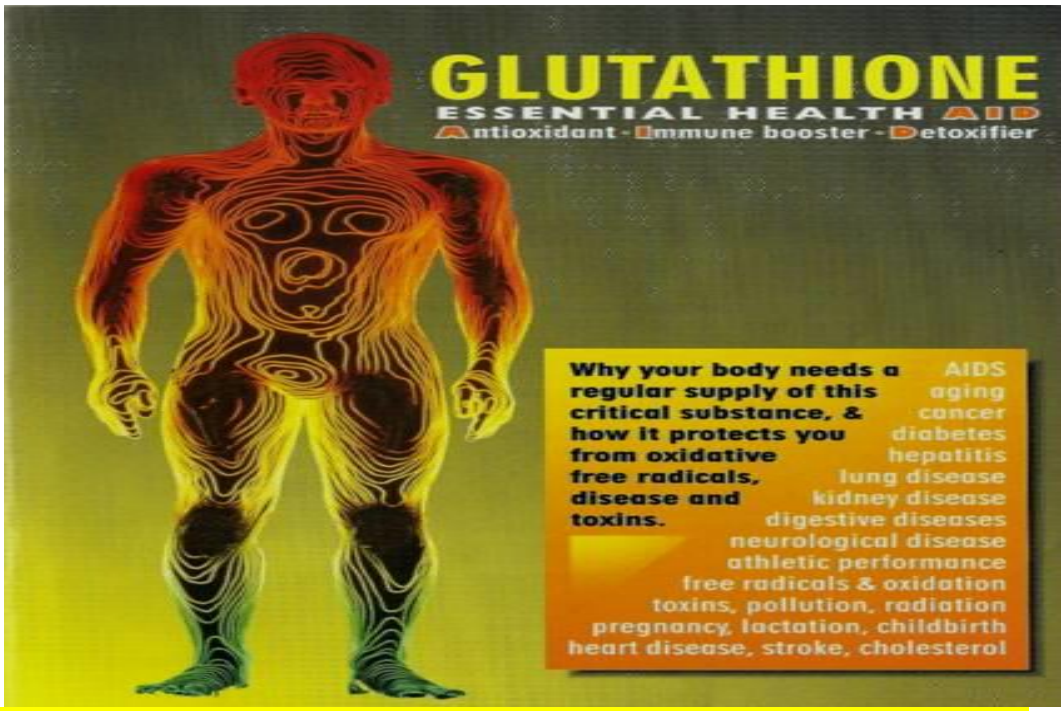
to manufacture a surprisingly large amount of Vitamin D in a short period of time. Experts say going outside for 15-30 minutes in midday summer sun with your arms, legs, and face exposed - and no sunscreen - will give you enough radiation to produce 10,000 to 20,000 international units of vitamin D *(significantly, this is now considered by many to be the therapeutic amount of vitamin D needed daily by many MS sufferers)*.

(WARNING: If you're fair skinned and sunning yourself outside during the summer in a bathing suit at noon, you may need only 10 minutes without sunscreen. Paradoxically, if you're already tan, olive complexioned, Hispanic or black skinned you will require more sun exposure - 20 to 30 minutes or more - to achieve the same vitamin D levels as a very fair-skinned Caucasian person).

But you ask, "What about sunshine and skin cancer?"

Experts have people worrying about too much sunlight causing skin cancer. Yet many of these same experts are now saying that their public-health messages warning about skin cancer have gone way overboard in getting people to cover up and apply sunscreen. Australian epidemiologist Dr. Robyn Lucas reported in the *International Journal of Epidemiology (2008)* that ***far more lives are lost to diseases caused by a lack of sunlight [and vitamin D] than lives lost to diseases caused by too much.*** And as we learned above, there is now compelling evidence that lack of sunshine - and the vitamin vitamin D insufficiency it causes - is a major contributing factor of multiple sclerosis.

REPLENISHING GLUTATHIONE (GSH) AND MULTIPLE SCLEROSIS



In combination with stem cell therapy RSCI recommends all MS patients replenish and optimize their glutathione levels.

Glutathione insufficiency is common among people with MS.

GSH is 18.5% lower in the brains of SPMS patients and thought to be responsible in part for the functional decline seen in MS patients.

What is Glutathione (GSH)?

Glutathione *(pronounced "glue-ta-thigh-own" - Abbreviated GSH)* is a natural chemical continuously generated inside every cell of your body, including cells of the immune system. At optimal concentrations, glutathione functions as an extremely powerful anti-oxidant, immune system booster and detoxifier, helping us fight off virtually all diseases. Without sufficient levels of GSH, however, our immune systems become increasingly weak and we become increasingly susceptible to disease.

According to William E. Code, MD, bestselling author of "*Who's in Control of Your Multiple Sclerosis*" - and a multiple sclerosis survivor - GSH levels in the body are a key indicator of health and how long a person will live. Unfortunately, by the time you have a serious chronic disease, your GSH level is often greatly depleted. More to the point, by the time you've been officially diagnosed with a chronic neurological disease such as multiple sclerosis, the body's glutathione level may be only 5-10% of what it should be.

Glutathione insufficiency is common among MS patients. GSH is 18.5 percent lower in the brain of secondary progressive MS patients and thought to be responsible in part for the functional decline in these patients *(Choi IY et al. Multiple Sclerosis. 2011 March).* **GSH needs to be replenished and optimized as a key part of an integrative medicine program.**

Foods, nutrients & spices that replenish insufficient GSH levels include:

- **Glutathione-rich & glutathione-generating foods -** These include walnuts, asparagus, avocados, onions, garlic, broccoli, Brussels sprouts, cauliflower, cabbage, kale, peaches and the spices turmeric *(with 95% curcumin - see below)* and cinnamon.
- **N-acetylcysteine (NAC) -** Of all the oral "glutathione replenishers," this amino acid is my favorite. NAC is low in toxicity, the least expensive and most readily available as an over-the-counter health food supplement *(Alt Med Rev 1997; vol 2(3): pp 155-176).*
- **Turmeric (with 95% curcumin) -** Our favorite medicinal spice struts its stuff again! Treatment with oral curcumin *(the known active ingredient in turmeric)* restores depleted glutathione levels in brain cells *(Free Radical Biol Medicine, 2008),* and is thought to play a key therapeutic role in many chronic brain diseases in addition to multiple sclerosis, including multiple sclerosis, Parkinson's and Alzheimer's.
- **Vitamin D** - Along with all its many other benefits, vitamin D is reported to increase production of glutathione in the brain. What an astoundingly versatile, valuable vitamin!
- **Lowering homocysteine blood levels, if elevated -** At least 20% of all MS patients have unacceptably high homocysteine blood levels. At the same time they also have low

vitamin B12, folic acid and glutathione levels. If your homocysteine blood level is above 9 units (micromoles/liter) as determine by a simple blood test, it needs to be lowered, optimally to about 6 units. By optimizing homocysteine in your blood with therapeutic amounts of vitamin B12, folic acid, vitamin B6 and the amino acid trimethylglycine (TMG), glutathione levels often increase dramatically *(for more detailed information about homocysteine, the role it plays in over 100 diseases and how to achieve an optimal level, see Patrick Holford's and my book "**The H Factor Solution,**" available at www.amazon.com/books and www.barnesandnoble.com)*

Celiac Disease, Gluten sensitivity and Multiple Sclerosis

Celiac disease is a very common disease affecting over three million Americans. It is linked to more than 250 different medical conditions, including MS.

Celiac disease is the most common genetically acquired autoimmune disease in the world today.

11 percent of MS patients have tested positive for celiac disease. This is a stunning discovery in that it shows a 5-10 fold greater prevalence of celiac disease in MS than is found the normal population.

SCCNA routinely screens all MS patients for celiac disease.

By diagnosing celiac disease, MS patients may have discovered a major, underlying cause of their disease! Eliminate the cause, eliminate the disease.

- **Celiac disease (CD)** is a very common disease affecting over three million Americans (*twice as common as ulcerative colitis, Crohn's disease, Down's syndrome, multiple sclerosis and cystic fibrosis combined).* Unfortunately, it is also commonly ignored, undiagnosed and untreated in the USA with over 90 percent of celiacs never tested, detected or treated.
- CD is related to a permanent, genetically acquired sensitivity to the **gluten protein** found in the gluten grains wheat, rye, barley, oats, kamut, spelt and triticale. It is accurately diagnosed today by a combination of blood tests *(one of which is routinely used at our Center)* and an intestinal biopsy.
- Celiac disease is an autoimmune disease associated with more than 250 different medical conditions, a number of which are other autoimmune and brain diseases.
- Death from all causes is 4-fold higher in those with undiagnosed, untreated celiac disease compared to people without CD.
- Celia disease's prevalence worldwide is 1 to 2 percent of the adult population *(much higher in people with certain conditions such as insulin dependent diabetes, autoimmune thyroid disease, depression that doesn't respond to medication, epilepsy/seizures that don't respond to medications, problem pregnancies, infertility, Down's syndrome, rheumatoid arthritis, psoriasis & psoriatic arthritis, canker sores, esophageal reflux, restless leg syndrome…**and multiple sclerosis** - see below),* making it the most common genetically acquired autoimmune disease is the world today. And it's on the increase *(Gastroenterology. 2009 July; 137(1): pp 88-93).*

In a recent path breaking (& breathtaking) study from Spain *(Rodrigo et al. BMC Neurology 2011),* **11 percent of MS patients tested positive for celiac disease. One-third of their first-degree relatives were later also diagnosed with celiac disease** *(Remember that CD is a genetic disease).* **This is a stunning discovery in that it shows a 5-10 fold greater prevalence of celiac disease in MS patients than is found the normal population. The MS patients with celiac disease were then placed on a strict gluten-free diet and followed for the next three years. All experienced excellent relief of symptoms.**

RSCI routinely screens all MS patients for celiac disease, making use of an innovative in-office test kit from Finland. (NOW IT IS DONE AT HOME BEFORE STEM CELLS) It is a simple 10 minute test requiring one single drop of blood from your finger tip. Ten minutes later you have the result *(The first MS patient tested for celiac disease at our clinic was a Canadian suffering from secondary progressive MS. Ironically his occupation was that of - wouldn't you know it? - A wheat farmer! Just this morning I was informed by Dr. Ramirez that a 72 year-old patient of ours treated for dementia unexpectedly tested positive for celiac disease).*

If you test positive for celiac disease, you are placed on a very strict gluten-free *(wheat-free, barley-free, rye-free, oat-free)* diet indefinitely.

Most importantly, by diagnosing celiac disease, patients with multiple sclerosis may have discovered a major, underlying *cause* of their disease! Eliminate the cause, eliminate the disease.