



Take Control of Multiple Sclerosis



DIRECT-MS
defy the diagnosis

ESCAPE THE STORM

FIGHT MULTIPLE SCLEROSIS WITH
SCIENCE-BASED DIETARY STRATEGIES




What is Direct-MS?

DIRECT-MS (DIet REsearch into the Cause and Treatment of Multiple Sclerosis) is a federally registered charity that was established in 1998 by persons directly affected by MS. Fuelled by a passion to provide reliable science-based information on nutrition and MS to all those affected by MS, the founders of DIRECT-MS committed the focus of the organization to two main goals:

- To provide reliable, science-based information on the role that nutritional factors play in MS so that those affected by MS can make an informed decision on whether or not to use dietary strategies for managing the disease.
- To fund scientific research which properly tests the effectiveness of dietary strategies for slowing or halting MS progression.

As a grass-roots charity, Direct-MS is completely volunteer-driven with very low overhead costs and no paid staff. 98% of the funds raised through donations go directly to funding scientific research.





Ashton and Matthew Embry in March 2003.
*At 26, Matt is a successful and active television producer.
He plays squash and basketball on a regular basis.*

Origins

Eight years ago my oldest child received the devastating diagnosis of MS. Having been a research scientist for 30 years, I decided to plunge into the scientific literature for MS to determine the most likely factors which cause MS and to use this information to develop an effective therapy for my son.

I discovered abundant scientific evidence that indicates that various nutritional factors potentially play major roles in the onset and progression of MS. The information in this booklet is a summary of my findings and my science-based recommendations for using dietary strategies to slow or halt the MS disease process.

Many people are having success in halting MS progression with the dietary strategies described in this booklet. Notably my son is in excellent health with no MS symptoms eight years after diagnosis.

This booklet is provided as general medical/scientific information and is not intended as a substitute for the medical advice of physicians. The reader is encouraged to seek advice from their doctor on matters related to MS.

A handwritten signature in cursive script that reads "Ashton Embry". The signature is written in dark ink on a light background.

Ashton Embry PhD March, 2003

Personal Accounts

Below are a few accounts of success sent in to Direct-MS over the past few years.

“First, there is me, whose MS mostly affected my legs and walking and hobbled me with that tremendous fatigue. Well, in October, I hiked down the Grand Canyon, 2/3 of the way to Plateau Point and back up in one day.”

“There is definitely a great improvement in how I feel. I have been reluctant to associate my improvement with something so simple as diet, however, I can no longer not associate it.”

“In January 1998, an MRI revealed 67 enhancing lesions in my brain, the worst my neurologist had seen. My latest MRI scan on October 26, 2000 shows NO enhancing lesions in my brain! I thank you dearly for your work and I pray for the success of DIRECT-MS.”

“I get excited about how the diet has given me such a wonderful quality of life. It is miraculous.”

“1 1/2 year after my first symptom, I could no more run, I had difficulties in the stairs, I was numbed almost everywhere, I was no more able to do roller skating, my favorite sport, because of balance trouble. Since going on the diet, MS has stopped its progression. 22 months latter, I've healed 98% of the damage. I'm almost as before.”

“Now we have a solid 2 years with diet and Vitamin D supplement for one year, and no progression. Pretty good, eh?”

“Yesterday, I finally had my follow-up meeting with my neurologist after my MRI in December. I'm getting a big stamp on my medical file that says: NOT MS! I know that the diet revision you led me to had a huge part in preventing my second diagnosis from being “MS” instead of “NOT MS”.

“I found your dietary recommendations and today I am well on my way to complete recovery. I have plenty of energy to do yardwork and care for (and wrestle with!) my darling little boy. I am convinced that I will not go back to that dark place I was.”

“If I dare to slip from my diet even for a mere moment I can immediately feel the change in my health. As a matter of fact I feel better than I ever have and just want to say thanks for helping me see the light.”

What is Multiple Sclerosis?



- Multiple Sclerosis is a serious neurological disease characterized by a wide variety of impairments that often become progressively worse with time. Sadly many people with MS eventually become confined to a wheelchair because they have not been able to significantly slow or halt disease progression.
- MS is classified as an autoimmune disease. The basic disease process of an autoimmune disease such as MS is that a person's own immune system attacks specific parts of the body.

The Disease Process

In MS the immune system attacks tissue in a person's central nervous system. The specific tissue that is damaged is myelin which wraps around and insulates the nerve axons of the central nervous system. The axons deliver instructions from the brain to all the parts of the body and the loss of the protective myelin cover causes such messages to be delayed, faulty or even blocked. This translates into the multiple disabilities that characterize MS.

Therapy Essential

If the disease process is not arrested, more and more myelin is destroyed over time and disabilities multiply. It is essential that anyone diagnosed with MS institutes therapies that will halt or

“ IT IS ESSENTIAL THAT ANYONE DIAGNOSED WITH MS INSTITUTES THERAPIES THAT WILL HALT OR GREATLY SLOW THE DISEASE PROCESS.”

greatly slow the disease process so as to ensure they do not develop a multitude of life-altering disabilities. The sooner such therapies are used the better.

What causes MS?

Genes and Environment

It is well accepted that only those who are genetically susceptible to MS can possibly contract it. Studies of identical twins indicate that not everyone who is genetically susceptible to MS actually gets it. This shows that one or more common environmental factors cause MS and affect its progression. The key to controlling MS is identifying and eliminating these environmental factors.

Why Myelin is Attacked

The harmful autoimmune reactions occur because the immune system recognizes parts of myelin as “foreign” and potentially harmful. This case of “mistaken identity” occurs because proteins in the myelin closely resemble various foreign proteins found in viruses, bacteria and foods that the immune system has previously encountered. Thus when the immune system defends the body against such foreign proteins as it is supposed to, it also attacks the very similar looking “self proteins” in myelin.

Faulty Immune Suppression

- Another major factor in the onset of an autoimmune disease like MS is that the immune system has a “suppressor” side that quickly shuts down harmful autoimmune reactions.
- Persons with MS seem to have defective immune suppression and are not able to contain sporadic autoimmune reactions.
- Vitamin D and fish oil are two nutrients that are very important for immune suppression.
- Notably it has been found that in areas where MS is common there is widespread deficiency in vitamin D and fish oil.

Four Causal Factors of MS

The main environmental factors identified as likely drivers of the MS disease process are:

Infectious Agents

Common viruses and bacteria activate myelin-attacking immune cells.

Food Types

Dairy, gluten grains and legumes also can potentially activate myelin-attacking immune cells.

Vitamin D Deficiency

A deficiency in vitamin D hinders immune suppression.

Fish Oil Deficiency

A deficiency in fish oil also hinders immune suppression.



Infectious Agents



Numerous common viruses and bacteria have been found to contain proteins that resemble proteins in myelin and thus have potential to help drive MS. Some examples are:

- Epstein-Barr virus that is responsible for infectious mononucleosis
- Human Herpes-6 virus that causes the childhood disease roseolla.

Unfortunately little can be done about such infectious agents.

Autoimmune

Food Types



Three specific food types have been implicated in MS and closely related autoimmune diseases such as rheumatoid arthritis and type 1 diabetes:

- Dairy (milk, cheese)
- Grains that contain gluten (wheat, rye, barley)
- Legumes (beans, peas)

Like the infectious agents, these food types contain proteins that can potentially activate myelin-attacking, immune cells.

Activators

Vitamin D Deficiency



- Vitamin D is a very effective immune suppressant. It is derived mainly from the action of sun-derived ultra-violet radiation on the skin.
- MS most commonly occurs where vitamin D supply is low and many persons with MS have a marked deficiency of vitamin D.

Autoimmune

Fish Oil Deficiency



- Fish oil is another nutrient that is very important for immune suppression.
- Notably it has been found that in areas where MS is common there is widespread deficiency in fish oil.
- Feeding of omega 3 polyunsaturated fat (fish oil) to laboratory animals protects them against an MS-like disease.

Suppressors



Problematic Food Proteins

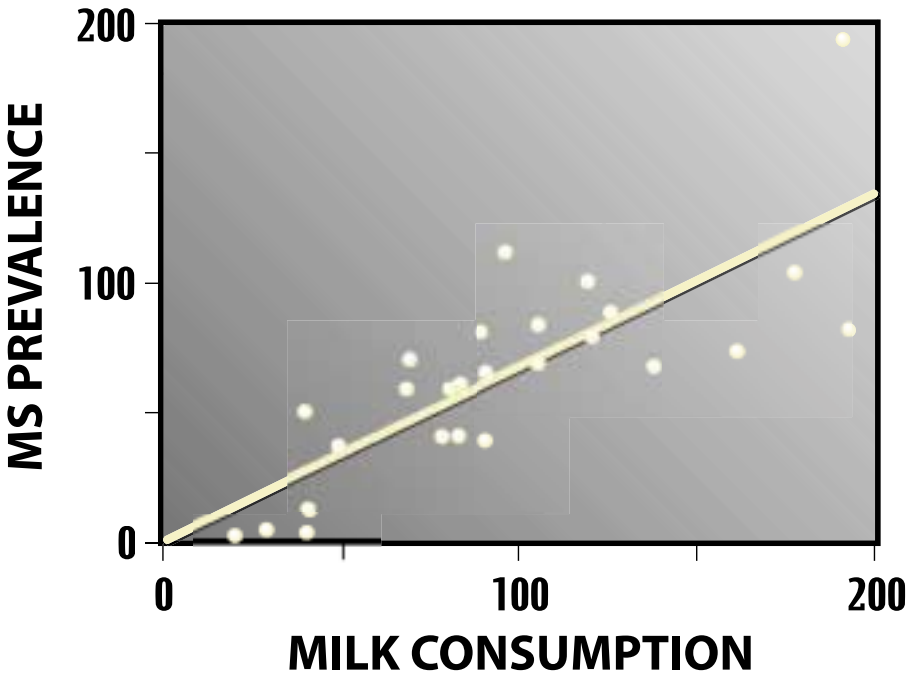
Very diverse and abundant scientific evidence indicates that three specific food types - dairy, gluten grains and legumes - contribute to multiple sclerosis by activating myelin-attacking immune cells.

Scientific Evidence

- Fragments of dairy protein closely resemble parts of myelin proteins.
- Specific immune cells that attack dairy proteins also attack myelin proteins
- Dairy proteins cause an MS-like disease in laboratory animals
- There is a very close correlation between the amount of milk consumed and the occurrence of MS (see diagram).
- Milk, wheat (gluten) and soy (legume) cause autoimmune diabetes in laboratory animals.
- Small clinical trials for rheumatoid arthritis have shown that avoidance of dairy, gluten and legumes results in major symptom improvement
- Gluten grains are the cause of a number of autoimmune diseases including celiac disease.

Milk Consumption vs MS Prevalence

The diagram below shows there is a very close correlation between the amount of milk consumed and the occurrence of MS. The higher the milk consumption, the more common MS is.





Vitamin D-an Autoimmune Suppressant

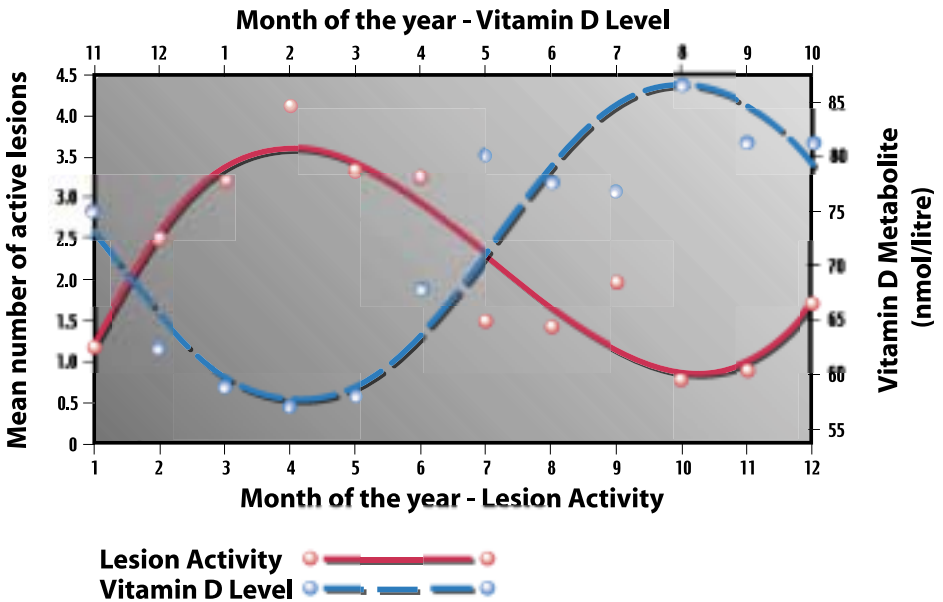
Vitamin D is a very effective immune suppressant. It is derived mainly from the action of sun-derived ultra-violet radiation on the skin. Notably MS most commonly occurs where vitamin D supply is low and many persons with MS have a marked deficiency of vitamin D.

Scientific Evidence

- MS in genetically similar populations systematically becomes more common as vitamin D supply decreases with increasing latitude. This is the main reason that MS is 4 times more common in Canada than in the southern USA.
- A detailed study in Australia has shown that variations in MS occurrence correlate very closely with variations in ultra-violet radiation (UVB) supply from the sun, the main source of vitamin D.
- MS rates are very low in local populations that eat a lot of fish, the only dietary source of abundant vitamin D.
- Vitamin D injections prevent and arrest an MS-like disease in laboratory animals
- Immunological studies show that vitamin D can suppress autoimmune reactions
- There is a close correlation between seasonal changes in MS disease activity and seasonal changes in vitamin D supply (see diagram)

Vitamin D Level vs Lesion Activity

The diagram below shows the close correlation between changes in MS disease activity and changes in vitamin D supply. The lower the vitamin D, the higher the disease activity and vice-versa.





The Role of Fats in MS

There are four main types of fat:

- Saturated fat
- Monosaturated fat
- Omega 6 polyunsaturated fat
- Omega 3 polyunsaturated fat.

Studies have shown that omega 3 polyunsaturated fat, found mainly in fish and flax, is an effective immune suppressant and is beneficial for autoimmune disease.

“CANADA HAS THE HIGHEST RATE OF MS IN THE WORLD AND ALBERTA HAS THE HIGHEST DOCUMENTED RATE IN CANADA.”

Saturated fat, on the other hand, found mainly in animal products, and omega 6 polyunsaturated fat, found in many vegetable products, can promote autoimmune reactions.

Monosaturated fat, found mainly in some vegetable products (olive oil), has no effect, on autoimmune reactions.

Fats and MS

Scientific Evidence

- There is a close correlation of MS occurrence and the amount of saturated fat and omega 3 polyunsaturated fat consumed. The more saturated fat and less omega 3 polyunsaturated fat consumed, the more common MS is.
- Feeding of omega 3 polyunsaturated fat (fish oil) to laboratory animals protects them against an MS-like disease.
- Immunological studies demonstrate that omega 3 polyunsaturated fat suppresses autoimmune reactions.
- A recent, small clinical trial showed that fish oil supplements significantly reduced MS attacks over a two year study.
- Increased intake of fish oil is very beneficial for rheumatoid arthritis.

The Newfoundland Question

Canada has the highest rate of multiple sclerosis in the world with over 150 people for every 100,000 having MS. Alberta has the highest documented rate in Canada with over 300 per 100000 having MS.

The MS rate is reasonably similar throughout most of Canada, almost always exceeding 100/100000. Curiously, a very low rate is found in the fishing villages of Newfoundland. Here the rate of MS is less than one tenth of that of Alberta and genetic differences or infectious agents cannot explain such a striking difference.

The answer to the question of “why is the MS rate so low in the fishing villages of Newfoundland?” provides a very important key to the identification of some of the causal factors of MS. The answer becomes rather obvious once dietary factors are examined in the light of our current understanding of the MS disease process.

Dietary Strategies

The scientific information relating various nutritional factors to MS has led to a comprehensive dietary strategy for affecting the MS disease process. To control MS, it is important to stop eating some food types, to reduce consumption of others and to eat more of other types.

Eliminate

- Dairy products (milk, cheese, yogurt)
- Wheat, rye or barley (gluten grains). Substitute rice-based products (rice bread, rice pasta)
- Legumes (beans, soy, peanuts, peas)
- Any food which causes an allergic reaction as determined by either a body reaction or a blood test
- Candy and soft drinks

Reduce

- Greatly reduce saturated fat intake by eating red meat (lean cuts) only once a week.
- Reduce omega 6 polyunsaturated fat intake by using little if any margarine and salad oils. Use olive oil for fat supply.
- Eat non-gluten grains (especially corn) sparingly.
- Keep alcohol intake low (no beer).



FIGHT MULTIPLE SCLEROSIS

WITH SCIENCE-BASED DIETARY STRATEGIES

Increase

- Use mainly skinless breast of chicken, game meat and fish for protein supply.
- Eat plenty of vegetables and fruits for carbohydrates and fibre.
- Take a variety of supplements to enhance health, to avoid deficiencies and to heal various systems.

Daily Supplements

Vitamins

- Vitamin A 5000 IU
- Vitamin B 50 mg of B-50
- Vitamin C 1 g
- Vitamin D 4000 IU (Oct.-April), 2000 IU (May-Sept.)
- Vitamin E 400 IU

Minerals

- Calcium 800 mg
- Magnesium 400 mg
- Zinc 30-50 mg
- Copper 2 mg
- Selenium 200 mcg

Oils

- Salmon Oil 4-6 g
- Flax Oil 1 tablespoon

Other

- Alpha lipoic acid 500 mg
- Acidophilus 6 capsules
- Lecithin 500 – 1000 mg
- L-glutamine 500 mg

Nutritional Research

- There is an urgent need for much more effective therapies which greatly slow or halt MS disease progression. The available scientific information indicates that the dietary strategies outlined in this booklet may be an effective therapy for MS.
- The first research initiative will be to properly test the effectiveness of dietary strategies for MS.
- Neurological and nutritional researchers at McGill University in Montreal, Canada have committed to undertake the clinical trial research once sufficient funds are raised.
- The clinical trial involving MRI scans, neurological exams and immune markers will be carried out over a two-year study period. The estimated cost of the trial is between \$300,000 and \$400,000 and over half of this amount has already been raised.
- 98% of all money donated to Direct-MS will go towards funding this research.

Making a Donation

All of us connected with Direct-MS would be most appreciative of any size of donation you wish to give. It is emphasized that all donations are tax deductible in Canada and USA and a tax receipt will be sent to you promptly.

Also we would stress that your entire donation will go towards the planned research project to test the effectiveness of nutritional strategies for halting MS. No salaries or expenses are paid at DIRECT-MS. Our small overhead costs are completely covered by donations from our directors and all costs related to the dissemination of information, such as this booklet, are covered by a government grant.

Please make out a cheque to DIRECT-MS and send it to:

DIRECT-MS
5119 Brockington Rd NW
Calgary, Alberta
Canada, T2L 1R7

We are very grateful for your support and you can be sure your entire donation will go towards helping persons with MS.

We Need Your Help

Only through proper research will we know with reasonable certainty whether or not dietary strategies are effective for slowing or halting MS progression. Positive results will provide persons with MS with an effective, safe, no cost therapy.

You can help support our goal of funding a proper clinical trial that tests the effectiveness of dietary strategies for slowing MS progression by making a tax-deductible donation today. You can be sure that essentially your entire donation will go to funding research.

Please feel free to contact us if you have any questions about the planned research project and the current status of the fund-raising effort. We are hopeful sufficient funds will be available within a year and that the clinical trial will begin soon afterwards.



Additional Information and Resources

Detailed scientific information on the relationship between MS and nutritional factors is available on the Direct-MS website <http://www.direct-ms.org>

A support site for those using dietary strategies to control MS is at <http://www.ms-diet.org> Many recipes are available on this site and people from around the world share their experiences with using dietary strategies for MS.

Please do not hesitate to contact us if you have any comments or questions regarding the use of dietary strategies for MS.

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DIRECT-MS
defy the diagnosis

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