SWANK MS FOUNDATION

ROY L. SWANK M.D., PH.D.
DIRECTOR BARBARA BREWER DUGAN, RN

JANUARY 1996 EDITION #69

We would like to extend a very happy and healthy new year to each of you.

We are enthusiastic to begin the new year. Please join us in the kick off of the new Swank M.S. Treatment Center with a welcome introduction of Dr. Morris Steffin. Dr. Steffin joined our staff January 1, 1996.

Dr. Steffin is Board Certified in Neurology by the American Board of Psychiatry and Neurology. He graduated from Wayne State University, Detroit, Michigan and went on to intern at University of Chicago. He later spent three (3) years in research as General Medical Officer, U.S. Army Research Institute of Environmental Medicine, Natick, MA. This was followed by a one year medical residency at V.A. Hospital in Long Beach, CA., and three years neurology residency, UCLA. He then was appointed Clinical Assistant Professor of Neurology at UCLA.

Dr. Steffin has received research awards including:

William Beaumont, Mead Johnson - SAMA

U.S. P.H.S. Fellowship, Tel Hashomer Hospital, Israel.

He has been involved in continuing neurophysiologic research and holds a patent on instrumentation relevant to M.S. research. Dr. Steffin will be leaving his private neurology practice in Scottsdale, Arizona, to join our staff.

WHAT IS MS?

The fundamental process in MS is destruction of myelin. Nerve cells ("neurons") are the fundamental communicators in the nervous system. They conduct electrical impulses that represent all the information we process in our brains and spinal cords. The "cables" along which these impulses flow from one nerve cell to the next are called "axons." They are surrounded by myelin which insulates them and prevents the impulses from being "short-circuited." ***Thus, anything that damages myelin greatly reduces the ability of the neurons to communicate.***

Myelin is produced by special cells, the "oligodendroglia" (or oligodendrocytes for "short"). In MS, the oligodendrocytes and the myelin they produce are attacked by antibodies synthesized in the patient's body. We don't yet know what triggers these abnormal antibodies, but we think they are arise in immune lymphocyte-like cells called "microglia." Probably, the trigger comes from exposure of the microglia to proteins that "leak" into the nervous system abnormally.

How do these sensitizing proteins leak in? Probably through a damaged blood brain barrier. The capillary blood vessels that supply the brain have small openings, or "tight junctions" that screen the chemicals to be allowed into the central nervous system (brain spinal cord). Because these capillary junctions normally keep harmful substances away from the central nervous system, thy are an essential part of this "barrier" between the central nervous system and the circulating blood. When the junctions are damaged, they become leaky, and probably then allow the abnormal proteins to enter the central nervous system to sensitize the microglia.

This sets off the process of destruction of myelin by the abnormal antibodies produced in the microglia.

The exciting aspects of MS research today are:

- Tracing the causes of the blood brain barrier damage
- Interrupting the immune system response that damages the myelin;
- Promoting repair of the damaged nervous tissue and neurorehabilitation.

We at the Swank MS Foundation are committed to an active program of research in all of these areas, and we are also actively engaged in the enhancement of treatments for MS patients.

One of the new developments which we will be bringing to the Foundation is methods of biofeedback to assist our patients with the everyday management of their disease.

We will also be expanding our in-house diagnostic modalities with the addition of a full electrophysiology laboratory, including evoked potential testing.

As a new member of the staff at the Swank MS Foundation, I am looking forward to participating in these new developments.

Morris Steffin, M.D.

BALANCE

I have been testing your sway (balance) for the past 15 years, and in the last eight (8) years have done so with an improved apparatus designed by Jerry Bochme at the Oregon Research Center. This work will eventually be published.

Our balance control mechanisms make it possible for you to maintain an erect posture while standing or walking. You can also bend, turn quickly, and produce many other movements without losing balance. The neurological connections which make this possible are complicated and spread throughout the nervous system from the most remote connections in the skin and joints of the toes to the brain stem by way of the spinal cord. Connections from the inner ear, and the eye are also an important part of this system. These numerous reports are analyzed and quickly integrated in the brain stem and a report is sent to the cerebral cortex. Command signals are then sent to the muscles for appropriate corrections necessary to maintain balance. This entire procedure can take less than one (1) second.

The semicircular canals in the inner ear detects movement and position of the head. When swimming under water, these canals tell the swimmer the position of the body and head. They are equally necessary to detect position changes in every day life. The eyes are important in another way. They maintain balance when other systems are injured or their normal function impaired. Vision then enables us to ambulate upright, and directly to our destination.

Without vision, as we get older and as patients with M.S. become disabled, we become seriously incapacitated in the dark. We take care of this, in part, by having night lights which do not light up the room but do give us something to focus on. This allows us to maintain our posture the same as touching walls or furniture. Many of you will recall that I have demonstrated that the mere contact of your fingers with one of my fingers will add stability to your walking. Perhaps you can see the similarity of your problem with balance to that of a stool with two (2) legs. A third leg must be added for balance. In your case vision is often that third "leg".

Because of the widespread network connects, balance can be impaired by M.S. lesions when strength and coordination, and sensations including vision remain intact. Also, because of the widespread network connections balance is often involved during activity of the disease. If the balance tests show no change from year to year, the ambulation and sensations are also without change, then it is reasonable to assume that the patient is doing well.

PHYSICAL THERAPY - COUNSELING

In the next few months we will be expanding the services of our clinic with the addition of a physical therapist and counselor. It is our hope that the Clinic will eventually be able to serve the majority of the M.S. patients' needs.

The following diagram is the proposed future of the Clinic. We have worked very hard to make the Clinic successful and continue Dr. Swank's legacy. Without your support through the years, this vision would not have been possible:

EXERCISE - How Much Is Too Much?

Mild to moderate exercise is usually tolerated well by most patients. The problem lies within "how much is too much" and how will I know. The following rules may help:

1. During an exacerbation stop all exercise except for stretching and deep breathing relaxation techniques and range of motion.
2. Do not exercise until fatigued. This will cause a reco period of 1-2 days.
3. Do not over exercise a weakened area. This may cause increased weakness.
4. Reduce exercise on days of increased fatigue.
5. Do not exercise during hot summer days.
6. Aerobics and jogging can cause increased symptoms including exacerbation of disease. Choose your exercise program wisely. Swimming, water aerobics, stationery bicycle, easy and light weight lifting, walking and yoga are all tolerated well.
7. Do not heat up for long periods when exercising. Cool down following exercise with a shower.
8. If you experience increased fatigue the following day, this will alert you to "how much is too much". You should recover from exercise within 1 hour. If you are fatigued for 1-2 days you are potentially doing harm and can cause an exacerbation of your illness.

We have had many years to observe patients and their toler of exercise. Too much exercise is more harmful than none at all.

Barbara Brewer Dugan, RN

DIET

Did you stray from diet over the holidays? If so, reduce your saturated fat intake to no more than 5 grams for at least two weeks.

Recently we have had the opportunity to evaluate several patients who have followed diet carefully for over 30 years. The longest being 42 years. The results have been remarkable. The patients have avoided disability by close adherence to low-fat diet. Watch those fats!

PRODUCT INFORMATION

Baked Tostitos

Ingredients: Corn and Salt

Saturated Fat - 0

Oil - Neg

Permissible in any amount. These make a great snack with salsa.

French Fry Potatoes

Basic Country Goodness

Ingredients: Potatoes (color added)

Saturated Fat - 0

Oil - 0

Permissible in any amount. For those days when you are too tired to take your shoes off, quick food preparation is important. Try these oven fries with a vegetarian burger and a vegetable side dish. Preparation time is less than 30 minutes.

Barbara Brewer Dugan, RN

SUPPORT GROUP

For those patients living in the Seattle-Bellevue area, Sally Holmes would like to establish a support group for M.S. patients. If you are interested, please call Sally at (206) 455-9705.

CLINIC NEWS

The word is out. Dr. Swank and Barbara have been invited to Argentina to give talks on low-fat diet and the treatment for M.S. Additional information will follow in subsequent newsletters.

COMING EVENTS

The Swank MS Treatment Center is proud to present the first of a series of symposiums on the management of MS. Dr. Roy L. Swank, M.D. Ph.D., Barbara Brewer Dugan, RN and Morris Steffin, M.D. will speak on such topics as:

- Management techniques that can stabilize your illness
- Learn what to do in a crises to prevent exacerbations
- Recognize symptoms that can lead to trouble
- Plasma Therapy theory
- Exercise - how much is too much
- Diet - label reading

February 17th - Bellevue, Washington

March 16th - Portland, Oregon

March 30th - Spokane, Washington

We hope to see you all there.

FOUNDATION/FUND RAISING

Why Are Stocks And Bonds Often Used For Charitable Gifts?

Stocks and bonds that are regularly traded on national stock exchanges, on local exchanges, or in the over-the-counter market, are the most traditional form of noncash gifts and are the easiest for the Swank M.S. Foundation to use. They can be transferred with minimal cost and delay. In most cases, the stocks and bonds can be transferred directly form your brokerage account to the M.S. Foundation's account.

Appreciated securities are prime candidates for gifts because they can be transferred without causing the donor to realize a gain on the appreciation; yet the gift still yields a current income tax deduction based on the fair market value of the stocks or bonds. Thus, the donor's spendable income is often increased rather than decreased by the contribution. Also, by gifting securities to the foundation, you remove appreciating property form your estate, which may lower death taxes and administration expenses.

Why Give Life Insurance?

An irrevocable gift of life insurance policy, with the Swank M.S. Foundation named as the owner and beneficiary of the policy, presents a particularly appealing way of making an outright charitable gift. It allows for acknowledging the act of giving now; permits a much larger gift than could otherwise be made currently; and is make from assets that are not currently needed for income production.

Jack Monteith

Donate To The Swank M.S. Foundation

Help keep the clinic alive and the patients healthy.
All donation are greatly appreciated.

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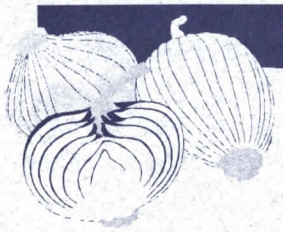


RECIPES

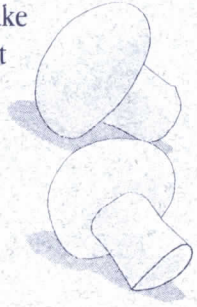
Pie Crust

4 cups flour
1 Tbs. sugar
2 tsp. salt
2 egg whites
1 Tbs. Vinegar
1/2 cup cold water
1 cup Canola oil

Combine 2 egg whites beaten with 1 Tbs. vinegar and 1/2 cup cold water. Add approximately 1 cup cold canola oil.

Mix the above with dry ingredients. Add more canola oil a little at a time, to get desired pie crust consistency.

Divide into 4 parts. Makes 4 crusts. Bake according to your favorite recipe! Turns out very flaky.



Fat Saturated - 0
Unsaturated Fat - 16 Tbs.
Per Pie Crust - 4 Tbs.
Approx. 1.5 tsp. per serving

Vegetarian Chili

1 onion, chopped
1 clove garlic, minced or pressed
1/2 Tbsp. oil
1 can (28 oz) tomatoes, undrained
1/2 cup fine bulgur
1 1/2 to 2 Tbsp. chili powder
1 can kidney beans
1 can (19 oz) chick peas, drained
1 can tomato sauce (7 1/2 ounces)
1 tsp. dried basil
dash Tabasco sauce

In a large (three litre) microwavable casserole, cook onion and garlic in oil until softened - about two minutes on high power. stir. Add tomatoes (break up with a spoon), bulgur chili powder. Cover casserole with a vented lid and cook on high for 8-10 minutes; stir once after four or five minutes.

Stir in kidney beans (drained or not, as you prefer), chick peas, tomato sauce, basil and Tabasco.

Cover and cook at 50% power (medium-low) for 15-20 minutes. Stir after 10 minutes.

Let stand, covered for 8-10 minutes. Serves 7-8 people.

Fat Saturated - 0
Unsaturated Fat - 1.5 Tbs.
Per Serving - Neg.

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MAY 1996 EDITION #70

STRESS AND THE MS PATIENT

Many neurologists do not believe that stress is a real factor in M.S. I, on the other hand, consider stress very important, only superseded in importance by the low saturated fat diet.

It cannot be absolutely stated that stress exacerbates Multiple Sclerosis. However, in my experience it is not uncommon to see an increase in symptoms or even major exacerbations following a stressful event.

Many physiologic changes are experienced in the body during times of stress. Let's look at a few of these to more fully understand the impact of stress on the body.

A stressful event stimulates the hypothalamus located in the brain. The sympathetic nervous system immediately signals the adrenal medullae to release epinephrine and norepinephrine (catecholamines). The body is now prepared for the fight or flight response. The greater the stress the higher the level of epinephrine and norepinephrine.

The next chain of events due to increased sympathetic nervous system activity will give you some idea why stress is an enemy to all disease processes.

1. Increased Heart Rate And Force Of Contraction
   ↓
   Increased Cardiac Output

2. Constriction Of Blood Vessels On Skin & Kidneys
   ↓
   This Increases Systolic Blood Pressure,
   Increased Circulating Blood Volume To More Active Organs.

3. Dilation Of Blood Vessels In Skeletal Muscles.

4. Decreased Peristalsis
   ↓
   Decreased Digestion

5. Rapid, Large Increase of Secretion By The Adrenal Medulla
   ↓
   Increased Epinephrine
   Increased Sympathetic Nervous System Response

6. Increase Liver Glycogenolysis
   ↓
   Increased Blood Glucose (Hyperglycemia)

The usual daily stresses that come and go and, to a certain extent, are humorous and lend spice to life, but they can hardly be considered dangerous to one's health, even to M.S.

However, the dangerous stresses which include loss of job, death of a loved one, divorce or rejection by one's spouse, legal matters, and accidents or even worry about one's own disease (M.S.) causes reappearance of old symptoms considered gone forever. Prolonged stress often fatigues the patient and old symptoms reappear.

In many patients stress producing symptoms appear whenever the patient overworks or worries to the point that sleep is interfered with. I have come to consider them fatigue symptoms since so many disappear with rest and calmness. They develop whenever the patient loses his calm. They also disappear when calmness is reestablished.

This brings me to the important part of my message. The diet alone reduces and then abolishes progression and exacerbations of disease, but it alone will not prevent stress symptoms from appearing. Controlling stress, and remaining calm is the second leg of our program. Careful adherence to diet and controlling stress, gives maximum protection to patients and allows them to enjoy the rest of their lives.

Long term stress may produce permanent worsening of symptoms. If there is loss or change in sensations the effect on the patient may be minimal. If the symptom is more serous, such as loss of balance it is necessary for the patient to decrease activity and initiate strategies for reducing the stress.

It should be clear from what I have already stated, that the patient still has an element of choice - which symptoms to benefit and which ones to ignore. However, here again it is wise and recommended that "calmness" be the operative word when ever fatigue symptoms appear. This is because your judgment may not be as reliable as you think - that feeling so many of you have, that you will preserve and succeed, may be dangerous at these times. - *Dr. Roy L. Swank*

ESSENTIAL FATTY ACIDS

There has been a great deal of discussion recently about Fatty Acids. Many patients are taking supplements to increase the fatty acids in their diet. I thought it would be wise to refresh your understanding of the fatty acid component of the diet.

What are Essential Fatty Acids? Every cell in the body contains fat. Fat and protein form the cell membranes. Saturated fats are solid at room and refrigerator temperature, i.e. butter, margarine, hydrogenated vegetable oil. Polyunsaturated fats (PUFAs) are soft, liquid at refrigerator temperatures. These fats are found in vegetable oils, seeds, nuts, green vegetables and certain fish. The body is capable of making some fat for growth but unable to manufacture PUFAs. That is why they are called Essential Fatty Acids. Essential Fatty Acids fall into two categories,

Omega 6 and Omega 3. Omega 6 is called Linoleic Acid and Omega 3 is called Alpha-Linolenic Acid.

Omega 6	Linoleic Acid	Seeds, Vegetable Oils, Legume's etc.
Omega 3	Alpha-Linolenic Acid	Greed Vegetables and certain Legume's

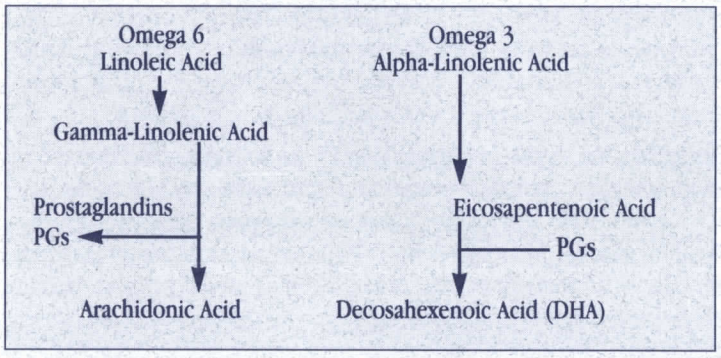
EFAs are needed for growth and repair of nervous tissue. The Swank diet contains adequate amounts of both Omega 6 and Omega 3 fatty acids. Additional supplements are not necessary, but are also not harmful providing you do not exceed 10 tsp. (50 grams) daily.

Cooking oils that contain linoleic acid are sunflower oil, olive oil, sesame oil, soybean oil, cotton seed oil, safflower oil and corn oil.

Alpha-Linolenic acid is more difficult to obtain in your diet. Linseed oil (Flax Seed Oil) is an excellent source.

If you are taking primrose oil, black current oil, borge seed oil, flax seed oil or cod liver oil remember to count it in your oil intake daily.

If dryness of your skin occurs, brittle nails or hair loss, increase your oil intake. It is necessary to have 20 grams minimum daily and no more than 50 grams maximum. - *Barbara Dugan, RN*



Can't Sleep?

In a recent issue of our newsletter we talked about insomnia. Many of you know these sleepless nights catch up with you. In a search for sleep aids many patients have inquired about Melatonin.

It is secreted cyclically from the pineal gland located in the brain. The amount secreted is regulated by the amount of light hitting your eyes. This hormone regulates our sleep patterns and keeps our biological rhythms in sync. The Pineal gland begins to secrete Melatonin as darkness falls. When light hits the retina neural impulses signal the brain to slow production of Melatonin.

Throughout life we produce Melatonin abundantly. At puberty the levels begin to drop and decline steadily in old age. Health enthusiasts claim Melatonin may strengthen the immune system, slow aging, combat jet lag, prevent cancer and give some relief for insomnia.

Is it safe? Long terms studies are not known at this time there are no reported hazards.

You will find several different manufactures and milligram levels available. As with any medication proceed cautiously. MS patients tend to be more sensitive to pharmaceuticals. Melatonin can be purchased in .5 mg - greater than 3 mg. If side effects develop stop the supplement and call your physician for advice.- *Barbara Dugan, RN*

Neurorehabilitation

It is the long range goal of the Swank MS Clinic to help all patients with MS and all levels of disease.

New therapies thus far have been aimed at the early cases of disease. Most treatment modalities for any disease are more effective at the onset of the illness.

It is always difficult to tell a patient it is too late for treatment. Our hope is we may be able to help those patients maintain a more productive life with the air of new advanced technology.

We are in the initial planning stages and realize this adventure will be costly but well overdue for the disabled patients.

The following are a few examples of specific symptoms that may be able to be helped, where no other therapy process is successful:

TREMOR

What do we mean by "tremor"? A patient with tremor in the arm, forearm, and hand will have difficulty reaching for an object, such as a drinking glass, and grasping it. The way she used to function no longer works.

An area of the brain called the cerebellum, which sits behind the main part of the brain at the back of the head, normally "puts the brakes" on excessive movement. In MS, this braking action is lost. So the patient's hand goes past the target. They try to bring it back, but it goes to fast, and so on, back and forth. This is called an oscillation of movement, or a tremor.

HOW CAN WE HELP PEOPLE WITH TREMOR?

One way is to use a specially designed computer system, with a technique called "virtual reality." Such a computer allows us to look at where a patient's hand is going and compare where it is supposed to be going. The nice part of this kind of computer is that it can then actually guide the arm and hand back where it should be just the way a physical therapist would try the same thing. Except that the computer can do the correction over and over again.

How does it help to keep repeating the same movement, with the computer guidance? We know from experience with other diseases (like cerebral palsy and stroke) where movement control is a problem that repeated training helps improve performance. Less work has been done to find out how much people with MS will respond. But there is neurologic support for the idea that they should respond.

We know the nervous system has great power to respond to illness by reorganizing itself. When activities are repeated, especially when the movements are perceived as inaccurate and needing correction, the nervous system adjusts.

The training process requires a lot of time, and repetition. Traditional physical therapy can't provide enough. That is why we are working with the computer. It can be there when the physical therapist can't.

Patients who are most likely to benefit are those who are moderately to severely disabled, like the person who has too much tremor to feed himself. With repetition under guidance, they may be able to retrain enough to allow themselves to reach the fork or glass. If the patient is severely disabled, he/she may only retrain enough to reach the glass with computer assistance.

But that would be a big gain. Because then they can feed themselves, with the help of the machine. This improvement in activities of daily living could increase the patients independence in the same way that using a wheelchair or hand controls and a autolift in a van increases

independence of mobility. That would reduce the burden on an important but scarce resource: the caregiver.

Developing the retraining system will take time and experience. Computer systems are already being used highly successfully to train surgeons to do complicated procedures in a "virtual" (simulated) environment. We believe we can use these techniques for people with MS. Our goals are to help with retraining and also to help people with activities of daily living. - *Morris Steffin, M.D.*

Interferon Beta-1a (Avonex)

The results of the recently completed two-year multicenter trial of interferon Beta-la (Avonex) have been published (L. Jacobs et al, Intramuscular interferon Beta-la for disease progression in relapsing multiple sclerosis, *Annuals of Neurology* Mar, 1996 39 (3):285-94. In that study, patients were monitored while receiving either weekly injections of this type of interferon, or placebo.

Interferon Beta-la differs somewhat chemically from Beta-1b in that it is produced by recombinant technology ("genetic engineering") from a substance produced in hamster ovary. Both compounds are proteins, but there are several chemical differences. The Beta-1a derivative can be injected weekly. It produces flu like symptoms similar to Beta-1b, but generally less severe. The occasional changes in liver function observed with Beta-1b do not seem to occur. Nor does the depression.

MRI findings showed decreased incidence of Gadolinium-enhancing areas among the treated patients compared to the untreated patients, with about two-thirds as many positive scans among the treated versus the placebo group. Similarly, the exacerbation rate in the treated group was about two-thirds that in the placebo group. There seemed to be a reduction of the volume of older nonacute (nonenhancing) lesions, but this was not as clear a finding.

The most interesting finding is that, in contrast to Beta-1b, Beta-1a administration seemed to decrease the progression of the disease. This was noted as a greater percentage of treated patients whose Kurtzke scores improved and also, in those patients who became worse, a lengthened time for the Kurtzke score to increase by one unit. The authors of the study therefore concluded that there was significant slowing of disability accumulation in comparison to the placebo group.

In summary, the study's stated conclusions are that interferon Beta-1a slows the progression of sustained disability in relapsing MS and reduces the exacerbation frequency and MRI activity of the disease.

It must be remembered that this is the first definitive clinical study of interferon Beta-1a. Further confirmation in other trials will still be necessary. But, the preliminary results are encouraging.

Interferon Beta-1a has not yet been approved for distribution by the FDA, but it will probably become available by the end of the year. We will continue to keep you advised as additional data becomes available.

Clinic News

With the opening of the clinic a little over a year ago came the opening of the plasma infusion clinic. Prior to this all plasma infusions were administered at OHSU or American Red Cross. By infusing patients in house we have a closer accounting of changes in symptoms.

Many patients have inquired as to when is an infusion warranted? Plasma is recommended when a patient experiences an increase in symptoms, i.e. loss of vision, marked weakness of an extremity, coupled with increase in fatigue. Often a working patient will have unrelenting fatigue and plasma will be a successful adjunct to low fat diet.

Plasma is also recommended immediately following surgery or the birth of a baby to prevent exacerbation of disease.

If receiving plasma therapy it is very important to remain closely on low fat diet to gain maximum results.

With each infusion we are able to gain more insight as to it's relevance in the treatment of MS.

At the present time the incidence of Aids in the Portland metropolitan area blood supply is approximately 1 in 750,000. The incidence of hepatitis is 1 in 7,500. It is possible to secure your own donors. All donors must have compatible blood types (ABO, Rh) and must not be blood relatives. We are continuing our research in this area. As you know research is costly and we have not been able to move as fast as we would like with all the responsibilities of opening the new clinic.

UPDATE: Dr. Swank has just returned from a nine day trip to Buenos Aires, Argentina. He gave a series of lectures on Multiple Sclerosis and its treatment by low fat diet, and then spoke to and answered questions from a group of about 200 MS patients. He and Barbara will be returning in October for a scientific meeting to present low fat diet.

M.S. Management Symposiums

The Swank MS Treatment Center presents a series of symposiums on the treatment and management of multiple sclerosis. Guest speakers will included: Roy L. Swank, M.D. Ph.D., Professor Emeritus Oregon Health Sciences University. Over 50 years experience in the treatment and research of M.S. Barbara Brewer Dugan, RN, 25 years experience in treatment and research of M.S. and Dr. Morris Steffin, M.D., Board Certified Neurology by American Board of Psychiatry and Neurology. Expertise in clinical care of M.S. patients.

June 15, 1996 - 10:30am - 3:00pm
$50.00 Per Person
Red Lion Hotel - One Red Lion Dr., Rohnert Park, CA
For Reservations Call 503-520-1050

The seminar will cover such topics as:

- Key management techniques that aid in the stabilization of your illness
- What to do in a crises to prevent exacerbations of your illness
- Recognize symptoms that can lead to trouble
- Plasma Therapy Theory - When is it necessary and what can I expect?
- Learn to discuss your fears through knowledge and management of your illness
- Exercise - How much is too much?
- Diet - Label reading - The latest products, are they good or bad? Fats & Oils

For additional information and reservations contact the Swank M.S. Clinic at 503-520-1050

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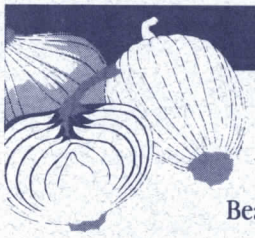

RECIPES

Apple Dumpling Deluxe

Beat together: 1 beaten egg, 8 oz nonfat yogurt

Sift together and add to above ingredients:

2 cups flour, 2 Tbls. granulated sugar, 2 tsp. baking powder
1/4 tsp. baking soda, 1/4 tsp. salt

Mix together in a separate bowl:

4 cups sliced peeled apples, 1/4 cups granulated sugar
1/2 tsp. cinnamon, 1/4 tsp. nutmeg

In small bowl, mix together:

1 1/2 cups water, 1 1/4 cups brown sugar, 2 Tbls. cornstarch
2 tsps. lemon juice

On a lightly floured surface, roll out dough to a 12 inch square. Spread apple mixture on top and sprinkle with sugar mixture. Roll up dough. Cut into 12 one inch pieces. Place slices in a greased 13x19 inch pan. Pour water -- sugar mixture over slices.

Bake uncovered in a 350 degree oven for 35-40 minutes.

Fat: Saturated - 5 grams Unsaturated - 0 grams
Per Serving - Negligible

Modesto Potatoes

2 tablespoons oil
1 tablespoon all-purpose flour
4 medium-sized potatoes, peeled and sliced
1 medium-sized onion, sliced
1 garlic clove, minced
Salt & pepper to taste
1/3 cup dry white wine
1/2 cup bouillon
1/2 teaspoon minced thyme and/or marjoram
1 tablespoon minced parsley

Heat oil in heavy skillet; mix in flour and brown quickly. Add potatoes, onion, garlic, salt, and pepper. Fry, turning often, until potatoes are slightly browned. Add wine, bouillon, and thyme. Cover tightly. Simmer until potatoes are tender and liquid is absorbed. Add parsley; mix well. Good with baked fish dinner. Serves 6.

Fat: None
Oil: Total - 6 teaspoons; per serving - 1 teaspoon

SWANK FOUNDATION

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The vascular system was a prominent contender for the cause of M.S. until about 1945. In 1952 it was discovered by the scientific world that when emulsified brain of animals was injected into other animals some weeks or months later these animals developed lesions in the brain that appeared to be similar to the lesions in MS. About 1945 another investigator found that when mineral oil and ground up Tubercle Bacilli were included in the brain emulsion for injection, that the lesions and symptoms appeared in days. This greatly stimulated further work along this line, and was the beginning of the large amount of work now included under the title auto-immunity research.

Although this work may not be related to MS it has had a binding effect upon MS. Some work closely related to the vascular system has been continued and some of it will be described here.

[illegible] patients experience very cold hands and feet. Now and then the extremities will turn red and in many, the extremities may be warm and painful. Also, it is recognized by most patients that they are temperature sensitive and most comfortable in moderate temperatures somewhere near 65-70 degrees F.

Most studies have been of sludging of the blood in capillaries of the nail beds, conjunctiva, and retina. Sludging consists of aggregation of blood cells which slow down and partially obstructs the circulation. One of the clinical effects of sludging of the blood are small subcutaneous hemorrhages which occur in about 60 percent of women with MS. The hemorrhages are rarely seen in men due to the darker and thicker skin. In my study of these small black and blue spots it was often evident that the hemorrhages came in showers and continued to occur for several weeks then disappeared. Often these showers were accompanied by deep fatigue.

Symptoms resembling Raynaud's phenomenon, redness of digits, numbness, tingling and burning, may also occur when exposed to cold. Fortunately it is rare in MS cases for Raynauds disease to be severe.

Cognitive Changes In Multiple Sclerosis

Changes in mental function, cognitive changes, are common in people with MS. Often the changes parallel the general state of the disease, but there can often be rapid changes in mentation that seemingly occur as separate events.

We understand some of the neurophysiologic reasons for these fluctuation in mentation, but some remain obscure. Overall, the changes can be divided in the following categories:

1. Decreased recent memory. Often, MS patients find that they cannot form new memory traces as well as normal. Hearing a phone number even two or three times may not be enough to recall it — the patient has to write the number down. Mental lists (shopping, for example) cannot be retained very well, and items have to be written down. This condition may be worsened by factors that increase fatigue, but some of these difficulties tend to persist and increase in severity as the disease progresses. Formation of recent memory is actually a very complicated process, involving areas deep within the brain, called limbic structures, that activate the cerebral cortex at the surface of the brain. The cortex appears to be where much of the specific information is stored, but this storage can only occur with proper activation and coordination by the limbic system. We believe that in MS some of these connections between the limbic system and the cortex may temporarily fail, become fatigued. The necessary activation may therefore not occur, and even though the information is perceived, it is not stored.

2. Decreased speed in information processing. When too many things are happening at once, or if too much information is given to a patient, she may feel that she is "blanking out." This is somewhat different from the recent memory problem. This is more of an "immediate memory" impairment. The patient simply cannot attend to all the different events at the rate they are occurring.

3. Judgment and intellect. This is the most complex function, and the one least understood. What we call "thinking" requires not only the perception and retention of information, but also the ability to recombine and integrate information to produce new information. Some of this new information is in the form of concepts, complex ideas with both verbal and nonverbal (spatial and sensory) representation. This integration process involves the "gray matter" of the cerebral cortex where many of the nerve cells of the brain are found. The nerve cells communicate with one another through a vastly complex network of input fibers (dendrites) and outer fibers (axons). The axons are myelinated, and when they lose their myelin, some of the communication channels become temporarily or permanently blocked. Unlike a man made computer, where loss of a central processor or even a small amount of memory brings down the whole system, the brain is a very redundant system, in many ways like a hologram. Knocking out the connections of a small, and even a moderate, percentage of neurons will not get rid of an idea or concept, but will make it "fuzzier," less precise, just as removing a portion of a holographic picture, unlike a photograph, leaves the image but makes it fuzzier. There is enough reserve in the brain to retain the idea, and eventually other neurons can be recruited to regenerate at least some

of the thinking process. So MS patients retain their judgment and intellectual abilities for a long time, maybe not as well as without the disease, but well enough to continue functioning at high levels in many cases for years. In severe case, late in the course of the disease, these more generalized functions of thinking may eventually become impaired. This general decline in some cases may result in significant dementia, this term is used for the general loss of intellectual function.

4. Specific (focal) cognitive problems. Some areas of the brain are more specific and concentrated in their functions than the foregoing. One example is the speech area, usually located in the frontal and temporal regions. A large plaque in these regions can cause speech difficulties, termed "aphasia," that may often improve after the inflammation in the area subsides.

5. Mood changes. People with MS can experience fluctuations in mood. In many cases, mood may be "up" (euphoria) because of changes in portions of the frontal lobes of the brain. Periods of depression and mood swings are also common, especially during exacerbations. Sometimes these mood swings can effect cognitive functioning and attention span.

6. Paroxysmal events of MS. At times, fluctuation in mental function may occur quite rapidly, lasting minutes or hours, and then may resolve. Probably in these cases, there are rapid changes in conduction in axons serving the functions we have already described. In a few cases, some of the changes can be due to actual seizure activity. While seizures are rare in MS, they do occur in some patients and will often respond to medications like those used to treat other seizure disorders. The non-seizure paroxysmal events usually do not respond to seizure medications, but usually improve with rest and with general improvement in disease status. It is therefore important to try to distinguish between these two causes of sudden changes in mentation. Electroencephalographic testing often is helpful here.

How do we measure cognitive changes in MS?

The history and examination of the patient, including the standard "minimental-screening examination" used routinely by neurologists, is the first step. An EEG can help exclude seizure activity. Cognitive evoked potential testing, a computerized technique of testing attention and information processing, can in some instances identify changes in brain function associated with changes in mentation. We routinely perform these studies where indicated at the Clinic.

More detailed mentation testing may be extended to neuropsychologic evaluation. This is formal testing procedure of several different mental functions, including memory, intelligence, verbal ability, and reasoning. This form of evaluation can sometimes be helpful in formal disability evaluations.

Remember that in general the treatment for the cognitive problems of MS parallels the treatment for the overall disease. Sometimes, specific medications, like antidepressants or amantadine for fatigue, can also be helpful in addition. In those cases where seizures in fact occur, specific treatment is also indicated in addition to the general management of the MS.

We have to deal with cognitive changes because they are a well recognized and frequent occurrence in patients with MS.

Morris Steffin, M.D.

Commonly Asked Questions By Patients

Why do we advocate the use of low fat diet for MS?

During the first (3) years (from June 1949 to abut January 1952), a reduction in exacerbations of MS of more than 80% was observed in patients on the low fat diet. Subsequently, exacerbations no longer occurred except following a break of the diet.

It was later found that moderate decrease in fat intake to about 30 gms/day also decreased the exacerbations rate. However, on that amount of daily fat the disability continued to increase as seen in non-dieters. To prevent continued disability as well as stop exacerbation, it was necessary to decrease the fat intake to between 10 and 15 grams of saturated fat per day.

With moderate decrease in fat intake, the exacerbations decreased, but disability continued to increase. Only on the very low fat intake between 10 and 15 gms/day was deterioration controlled. This was especially seen in early cases before disability had already developed. In these cases, 95% continued to be normally active for 35 or more years. The moderate or severely disabled patients did much better when on diet than those who failed to follow diet. Aging affected patients with definite disability more than it did early cases.

For this reason we find it important to make the diagnosis early start the low fat diet as soon as possible.

The aim of the low fat diet is to control the disease for a lifetime. In other words, it continues to prevent or slow down development of disability for the remaining years of your life.

Why do we believe that stress in important, whereas others treat stress casually?

The early, severe, neurological symptoms and signs leading to diagnosis of multiple sclerosis are know as exacerbations and are associated with damage to the central nervous system. The recovery which usually follows is called a remission. It is probably due to variable repair of damaged nerve fibers, plus transfer or rerouting of messages around the damaged or interrupted nerve fibers. Function, therefore, resumes sometimes slowly, and usually only partly.

Recovery from an exacerbation is often sufficiently complete for the patient to resume his former activity. Later, in active patients these symptoms may reappear. They are slightly modified and much less severe, and they almost always recur after excess physical or psychological stress leading to fatigue of the patient, who is now sleepless, unable to relax, irritable, and generally weak. Rest and control of stress by mild sedation are almost always followed by rec which is "complete". These fluctuations of disease, due to stress, persist if stress continues unabated, or the symptoms recur if the stress recurs.

These fluctuations from stress or fatigue are probably not due to further significant destruction of the brain or spinal cord, but rather

to fatigue of the remaining neurons and their connections in the central nervous system. With rest and sedation, the fatigue lessens and finally disappears, and the patient feels like his or her former self.

Early multiple sclerosis cases who follow the low fat diet carefully continue to be active without increase in disability for 35 years and more in the Montreal series, and similar observations are frequent in patients in the Portland series since 1954.

It is necessary to take into consideration the effects of aging. Early studies in German literature estimated a 1% loss of nerve cells each year, starting at the age of about 30 years. By retirement or death at 60-65 years, a total loss of cerebral nerve cells of 30 to 35% was determined by these same scientists.

Why do you consider pain a part of MS, yet other physicians deny the connection?

Pain occurs early in the disease while patients are still ambulant and active. It is often among the first complaints, often prior to evident weakness of the legs or other extremities. At first, it may be accompanied by feeling of heaviness. Often, it will be accompanied by vague sensory loss usually of the forearms, hands, legs and feet. A pin will be recognized as a pin, but its character will vary. In other words, the patient will describe a light pin prick as unusual or out of character, but will easily recognize it as a sharp object or pin.

When the patient is disabled and is often confined to a wheelchair, pain in the legs disappears. It may still bother the arms if the patient operates his own wheelchair, types or uses a computer. Bed patients rarely have the aching pain of MS.

The presence of frequent muscle aching and peculiar sensory symptoms are often present very early in MS patients and should be looked at suspiciously.

Message, local heat, and mild pain medicine usually relieves the pain. More vigorous exercise makes patients feel very good but usually increases the pain.

Lets Talk About Diet

One bite won't hurt you. How many times have your friends or family tired to convince you of this. What we find is it is difficult to stop with one bite. Usually one bite leads to 2-3 bites and soon off diet.

The diet permits 15 grams of saturated fat per day. An increase in saturated fat to 22.5 grams can cause continued fatigue and slow deterioration of your disease. Although the diet permits 15 grams of saturated fat per day most patients find they have more energy the lower the fat intake.

Your clinic appointment is a valuable time to check your diet. Please come prepared with two weeks written diet and your questions.

Label Reading:

Key words indicating saturated fat:

Hydrogenated vegetable oil	Palm oil
Coconut oiL	Partially hardened oil
Processed oiL	Mono and Diglycerides

Any product containing the above ingredients in the amount greater than 1 gram of saturated fat per serving must be avoided. If the product contains 0-1 gram of saturated fat count each serving as 1 gram and eat no more than two servings daily.

New Products

Woderslim Pure Low-Fat Cocoa Powder

1-800-497-6595 to locate in your area.
Use in all recipes calling for cocoa powder. Saturated Fat-0

Calculating Your Recipes For Fat & Oil

If you are having trouble determining the amount of fat in a recipe here is a simple way to calculate.

1 cup oil = 16 Tbs.

If a recipe calls for 1/4 cup oil = 4 Tbs.

$$\frac{12 \text{ tsp.}}{6 \text{ serv.}} = 2 \text{ tsp. per serv. (10 grams unsat. fat)}$$

If your recipe calls for 2 eggs = 10 grams sat. fat

$$\frac{10 \text{ grams}}{5 \text{ serv.}} = 2 \text{ grams sat. fat per serving}$$

Iron Absorption

Occasionally we find low iron levels in patients on diet, especially women. This can contribute to increased fatigue.

Meats fish and poultry rank highest proving approximately 1/3 of the iron in the diet. Eggs are not a satisfactory source as they contain an absorption - inhibiting factor. Although foods in the dairy group are rich in calcium they are a poor source of iron. While grains or enriched breads and cereals, not refined are the best choices and provide about 1/3 of iron in diets nation wide. the legume family, dark greens and a few fruits and rich in iron.

Iron absorption is enhanced by two factors. Vitamin C and MFP, Meat, Fish and Poultry contain a factor that promotes the absorption of iron. Vitamin C aids in iron absorption if it is consumed in the same meal. For the maximum iron absorption eat one of these factors with every meal.

The following foods contain the richest sources of iron:

Oysters	Spinach	Lima Beans
Peach	Navy Beans	Soy Beans
Kidney Beans	Sardines	Clams
Tofu	Baked Potato	Oatmeal
Sauerkraut	Peas	Broccoli
Whole Wheat Bread		

Recommended Dietary Allowance:

Women:	15mg. (during childbearing age)
	10mg. (after menopause)
Men:	10 mg.

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