MULTIPLE SCLEROSIS NEWSLETTER

January, 1987 From the Office of Roy L. Swank, M.D. No. 29
Editor-Barbara Dugan Assistant Editor-Barb Kalkhoven
Production-Ruth Stewart

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The Elusive Virus

At fairly regular intervals there is a news report of the discovery of a virus for M. S. Just as regularly the discovery fails to be confirmed, and occasionally, the report is retracted by its author. During my nearly 40 years work in this field, at least one dozen such reports have surfaced, none of which have managed to stay afloat. In some cases, particles, assumed to be viruses, have been seen by the electron microscope which fail to grow in cultures or to cause a sickness in animals. Prior to the electron microscope, both bacteria and spiroketes received these "honors."

Even should the "real" M.S. virus be discovered, we would be faced with years of work before it could be characterized and vaccines produced, and further delay before it could be tested.

It is strange that spouses of patients for many years rarely, if ever, get M.S. If M.S. were due to a virus, one would expect some direct evidence that the disease is infectious. In my experience with more than 3000 cases, many followed for many years, and many married in their teens or early 20's, that no single spouse has contacted M.S.

The Controversial M.R.I.

The diagnosis of M.S. and its reliability seems to have always been controversial. As soon as the criteria for diagnosis became clarified, something new entered the picture. In 1948 to 1954, when I started my studies of M.S. at the Montreal Neurological Institute the diagnosis was made strictly on clinical grounds. Being primarily a neurosurgical institution, tumors of various types were usually ruled out by lumbar puncture, myelograms, pneumograms, and arteriograms before complete acceptance of the diagnosis. Since then the visual, auditory, and sensory evoked potentials, Oligoclonal bands in the cerebrospinal fluid, CT scans, and last the MRI have been added. Each in turn has received great attention and have been hailed as the last word in diagnosis of the disease. Unfortunately, these tests have proven generally not helpful early in the disease because they are then frequently normal. They are often supportive in late phases of the disease when the diagnosis is clear on clinical grounds not only to the physician but often to the patient, family, and friends.

The MRI is no exception to the general rule. We have seen a number of cases in which the diagnosis was definite on clinical grounds but, in which, the MRI was normal. We have seen few cases in which the MRI by itself made the diagnosis, or even was necessary to arrive at the diagnosis. As a consequence, we have concluded that the MRI is a useful tool, but primarily useful in evaluating the damage to the brain from plaques, or plaques in formation. It also may occasionally

reveal a lesion in the brain at the time of exacerbation which confirms that there had been at least one former exacerbation. This then would establish that there had been at least two attacks, different in time and located in different parts of the brain. This would make it possible to arrive at a diagnosis with a reasonable degree of confidence.

If one demands a 100 percent assurance that a patient has multiple sclerosis, it is necessary to wait for pathological examination of the brain after death. However, I believe that a better than 95 percent assurance of the diagnosis can now be made on clinical grounds alone in exacerbating-remitting cases if one carefully follows the established criteria for diagnosis. It is somewhat more difficult to make an early diagnosis in the small number (3 percent) of patients whose disease is slowly progressive from onset. Obviously, early cases with fewer symptoms will pose greater difficulty, and the degree of assurance will be less, but it is surprising how frequently the possible or suspected early cases eventually turn out to be probable and then definite.

The criteria for diagnosis on a clinical basis is as follows: It requires that the patient have two or more attacks or exacerbations separated in time, and also in space, each attack being due to one or more lesions occurring at a different time, and located in different parts of the brain. It is convenient if the patient's age is between 15 and 45 years, but by no means is the disease excluded when the age is greater or less than this. It also helps if the attack is followed by a remission, in other words, there is a partial or what appears to be a complete recovery from the attack. During the attacks neurological signs must confirm the presence of neurological damage.

The problem arises when the patient has a "complete" remission and the signs disappear. Then the physician must rely on the history. At these times, the evoked potential, Oligloclonal bands in spinal fluid, CT scan, and the MRI can be of support. However, in this early phase of the disease these tests are usually negative and one must fall back on his clinical acumen.

To make a diagnosis early, therefore, it is often necessary to rely upon the patient's history. The red cell electrophoretic mobility test has been found to be positive in about 90 percent of early suspected cases. In probable, cases 95 percent of cases are positive and in the later definite cases, 100 percent are positive.

One must also keep in mind that none of the tests mentioned are specific for M.S. Other neurological diseases can give positive results with the evoked potentials, the spinal fluid examination, the CT scan, and the MRI. The red cell mobility test can be positive in amyatrophic lateral sclerosis.

A committee of prominent neurologists recently outlined the advantages and disadvantage of the MRI. This report was published in an issue of Neurology, a prominent neurological journal, and is reprinted in this letter. Note the underlined sentences.

Use of magnetic resonance imaging in the diagnosis of multiple sclerosis:

Policy statement

Magnetic resonance imaging (MRI) has been shown in a number of studies to be a very sensitive method for detecting focal areas of damage in the white matter of the cerebral hemispheres. This sensitivity has been reflected in the wave of enthusiasm with which MRI has been used in the diagnostic evaluation of suspected multiple sclerosis (MS). MRI cannot, at this time, distinguish between various tissue characteristics such as edema, infarction, inflammation, or demyelination. The detection of a discrete white matter lesion that has a strong signal on spin echo (SE) or a weak signal on inversion recovery (IR) has no specificity for MS or demyelination, but can be used as evidence of neurologic abnormality just as can nystagmus or a Babinski sign.

As is the case with evoked potentials, the main value of MRI in the diagnosis of MS lies in demonstrating lesions that are not clinically detectable in order to satisfy the criterion of dissemination in space. The degree to which patterns of one, two, three, or several discrete white matter lesions are specific for MS is not yet known. Systematic studies have shown that MRI is positive in 70 to 95% of patients with clinically definite MS (CDMS). In cases of suspected MS, MRI is positive (to some degree) in approximately 50% of cases. Follow-up studies, not yet completed, will tell just how accurately a positive MRI study will predict a diagnosis of CDMS.

It is therefore proposed that MRI studies suggestive of MS be treated as follows:

1. According to current information, MR is the preferred imaging technique in the diagnosis of MS.

2. Single or multiple white matter lesions with "typical" appearance of MS lesions can be used to satisfy the criterion for dissemination in space when used in conjunction with the clinical evaluation. There must be independent clinical evidence for a second lesion. A positive MRI without appropriate clinical findings must not be considered anything but suggestive of MS.

3. The age of the patient should be carefully considered in the evaluation since it is known that older patients can have asymptomatic periventricular white matter lesions of other causes, similar to those seen in some patients with MS.

4. If MRI is used to satisfy the criterion for dissemination in time, there must be the appearance of new lesions in a patient previously studied, using careful repositioning and the same MR stimulus and timing sequences. The new lesion detected must be large enough not to have been previously missed by positioning differences.

5. The failure to find lesions with MRI does not rule out MS as a diagnosis.

6. Even with the assistance of MRI, the diagnosis of MS remains a clinical one and must be made by an appropriately experienced clinician (preferably a neurologist), taking into consideration both the clinical presentation and the laboratory findings (including MRI).

7. When a definite diagnosis of MS is made on clinical grounds, the use of MRI is not required for confirmation.

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MULTIPLE SCLEROSIS NEWSLETTER

July, 1987 From the Office of Roy L. Swank, M.D., Ph.D. No. 31
Editor-Barbara Dugan, Assistant Editor-Barb Kalkhoven
Production-Ruth Stewart

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It has come to my attention that many people are confused about the M.S. Clinics at the Oregon Health Sciences University. This newsletter hopes to clarify this situation.

First, there is the Swank Clinic which has been in existence since 1954 and is still in existence. This clinic has about 1200 clinic visits per year and has an accumulated experience of about 3500 M.S. patients. 150 of these patients have been followed for 10 to more than 30 years. Dr. Roy L. Swank leads this clinic and sees all patients, Barbara Dugan is my Research Associate and monitors their diets, and Barbara Kalkhoven manages the office. In addition, Darah Ashton and Tony Leckbank are Research Assistants and do the flicker fusion eye and balance testing, and enter information into the computer for analysis of our accumulated laboratory and clinical data. This clinic treats about 25 patients per week, and unfortunately, has a long waiting period for appointments.

The Swank Clinic treats patients primarily with low fat diet which has been in use for 38 years. In addition, plasma infusions are used to treat serious exacerbations of disease. Steriods are used sparingly and infrequently, and immunoppressive drugs are never used.

An additional M.S. Clinic was established a year or so ago by the Neurology Department. The Director is Dr. Bourdette. This clinic maintains that it doesn't use the low fat diet, although, it advises the use of the American Heart Association Diet. It is not clear to this writer what else is used, except that it has been said that immunoppressive treatment has been used, at least in a few patients. I have also heard that plasmapheresis has been used in some cases.

It is of interest that the American Heart Diet, as now prescribed, is virtually the same as the Swank low fat diet. You (the reader) will be interested to know that the Swank diet has been in use for M.S. since December, 1948. The heart diet, first used in the mid-1950's had several times as much fat as the Swank diet. Over the years, however, the fat content of the heart diet has decreased to the fat content of the Swank diet. It seems to this writer that recommending the American Heart Association Diet is the same as advocating the Swank diet.

The fear of AIDS is still with us. Prior to 1985 before blood products contaminated with AIDS could be detected and thereby eliminated from use as intravenous therapy, the danger from AIDS was significant. Almost all of the cases which developed after blood or blood product transfusions date from infusions or transfusions prior to 1985.

Fortunately, there are now tests which recognize antibodies to AIDS so that AIDS contaminated blood drawn by the American Red Cross can almost completely be eliminated for infusions or transfusions. AIDS from transfusions is no longer the serious threat it was before.

Non-A non-B Hepatitis has up until recently contaminated about 1 in every 1000 units of blood. There has been some improvement recently and this frequency of contamination has been reduced about 50%.

Patients face two risks when their disease exacerbates or increases in intensity and the question of plasma therapy comes up - the risks of increased disability if nothing is done, and the risk of Hepatitis if they accept plasma therapy. A very large percentage of our patients have selected plasma. This is indicated by the large number of letters of protest which were sent to Dr. Zimmerman when the plasma treatments were stopped.

Plasma treatments have been resumed but we are restricted to patients who had received plasma before. Hopefully, this restriction will be removed.

Don't forget that the Summer is upon us and that becoming overheated or sunburned can cause aggravation of your disease. One can obtain temporary relief from being overheated by putting their hands or feet into cold water, by wrapping a wet towel around ones neck, by a cold shower, or by a plunge into a cool body of water. One patient has misted herself from time to time while working in warm surroundings.

We have found the MRI is positive or confirmatory of M.S. in a high percentage of advanced cases, or of disease present for many years. In early or short duration cases, when the MRI would be very helpful, it is usually non-confirmatory or negative. If the diagnosis is to be made before neurological disability occurs, one must not wait for the MRI to be positive.

Family support is important to patients with multiple sclerosis. We encourage the spouse to accompany the patient when seeing the Doctor whenever possible and especially for the first time. We must not forget that the impact of this diagnosis is felt by the entire family.

The patient must take into consideration the feelings of the children and spouse, and try not to let M.S. dominate their lives. Children are often embarrassed by the disease and angry because the parent is unable to participate in all their activities. We feel that the children should be protected from the every day events that the patient may suffer. Too many demands by the parent on the child can lead to problems later on. When the patient requests too much from the child using the excuse that they are tired and must be helped because they have M.S., a lack of cooperation and disrespect may result.

The children should be made aware but should not suffer the daily problems along with the patient. If outside help is necessary and unavailable, we suggest that the children participate in chores for short periods of time. Remember, however, to emphasize how much their help is appreciated.

It is also a difficult time for the spouse. Many times roles change. Financial roles may change causing additional stress for the spouse. We strongly suggest that the patient be careful not to place unnecessary demands on the spouse. Value their support, but do not remind them daily how tired you are. Select an appropriate time

when you can share your feelings and then attempt to maintain a positive supportive attitude.

For additional insight into this sensitive issue refer to our recent book -- The Multiple Sclerosis Diet Book by Swank and Dugan, published by Doubleday & Co., 1987.

Miscellaneous Office News

Dr. Swank and Barbara Dugan will be on vacation the first 3 weeks in August. Dr. Swank will be in Europe the first 2 weeks in September. Barbara Dugan will be in the office in September. Tony, Darah, or Barb will be in the office through August and September for telephone calls.

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Please note - The prefixes of all the telephone numbers at the Medical School have been changed. As of August 14, 1987, our telephone number will be 279-8370.

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In the last newsletter there was an order form for ordering the new book. You might have noticed that the cost of the book was given as $19.10 and $19.00. The correct amount is $19.10.

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Checks for cod liver oil are now to be made out to O.H.S.U. Foundation, Swank M.S. Research. Remember, the cost is $14.00 when picked up in the office, and $16.50 when mailed. If you would like your order mailed to you, mail your check to the office with a note requesting the cod liver oil.

Finally, I would like to remind you that we are constantly in need of money to pursue our research. Two main problems are being pursued. One is computer analysis of the large amount of data which has accumulated. Because of limited memory in our computer, we have recently had to purchase a new computer from IBM with an increase in both electronic and magnetic memory. We are also pursuing the problem of factor X, or the missing component in the blood plasma of M.S. cases. We will need about $50,000.00 this coming year to be able to continue with both of these projects.

As in the past we are asking those of you able to do so to help finance this work. The form below should be completed and accompany your donation to us. Thank you.

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Make Checks Payable to: O.H.S.U. Foundation, Swank M.S. Research
Mail Checks to: Roy L. Swank, M.D., L-104, 3181 SW Sam Jackson Park Rd, Port., OR 97201

CONTRIBUTOR'S NAME _____

CONTRIBUTOR'S ADDRESS _____

_____

AMOUNT OF DONATION $ _____

SWANK NEWSLETTER

MULTIPLE SCLEROSIS

DECEMBER 1987 NO. 32

FROM THE OFFICE OF ROY L. SWANK, M.D., Ph.D.
EDITOR: BARBARA BREWER DUGAN - ASSISTANT EDITOR: BARBARA KALKHOVEN
DESIGN COORDINATOR: ANTHONY LECKBAND

HOLIDAY BLUES TAKE TIME TO REST

During the latter half of September and all of October, we had numerous calls from patients with disagreeable M.S. symptoms. An increase in complaints in the Fall is not unusual, but we attributed it to the changing weather. This year, however, the weather has been unusually dry and pleasantly warm, instead of chilly and cold. This leads us to look for other causes for this increased M.S. activity. To be sure, the compliants have not indicated serious activity, but rather mild sensory changes, fatigue, and general weakness in most cases.

Close questioning of patients revealed that many previously felt very well and with the nice Fall weather they disregarded caution, became much too active, and failed to rest properly. This is a frequent problem, but it has not occurred in "almost epidemic" proportions before. Therefore, we hasten to warn patients that they take steps to avoid fatigue at all times. Rest midday even if it seems impossible for you to do so. Do not push yourself, pace yourself. Prepare for the coming holidays slowly, a bit each day, rather than in a big rush. You can then enjoy the holidays.

Thanksgiving and Christmas are especially hard on patients. This leads to prolonged fatigue early in the New Year. It is therefore wise to pace yourself and avoid fatigue thru this entire period. Do not attempt to do all of your shopping on one day, shop for short periods on a number of days, and rest by lying down after each shopping spree. Use the same tactic when preparing meals. Mothers with young children are apt to have an especially difficult time. Teenagers can be expected to assist in the preparations, and can ease the burden for afflicted mothers.

WHAT DOES YOUR BAROMETER SAY ??

This is also the season of aching muscles and joints. Aching in the lower extremities is made worse by being on your feet, and by standing or walking. It is usually improved by application of heat locally to the painful area with an electric heating pad or a hot water bottle, and by rest which is most effective when lying down.

ALSO IN THIS ISSUE

WHAT DOES YOUR BAROMETER SAY - cont.

The wearing of long underwear from now until May probably gives more long term relief. Pain medications have been only partially effective and often totally ineffective. Calcium, potassium, and quinine may have helped a few patients but, in general, have been ineffective. One patient reported relief from Vitamin E, 200 to 400 mgs./day, but this has not been investigated further. If any of you have found anything helpful, please let us know about it.

Dressing warmly during the day and wearing leg warmers when outside should be helpful. Dressing warmly at night including the wearing of warm knee length stockings often makes for increased comfort. A long sleeve turtle neck sweater is often equally comforting for pains in the shoulders.

Take care to avoid getting chilled during the Fall, Winter, and early Spring months. Yet remember that becoming overheated will cause generalized weakness.

The cause of the aching muscles and joints is believed by your writer to be due to inadequate circulation to the painful areas. This belief is based on the cold hands and feet, weak pulses in the extremities, and tendency to chilling of M.S. patients, as well as, to the fact that warming which tends to relieve the pain. One must also explain why occasionally we see painful extremities during hot weather. This I believe is due to circulation being pooled in the skin, in which case, deeper areas are ischemic or have too little blood.

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HOW IT ALL BEGAN - SWANK DIET 1948

In this and the next newsletter we will review our treatment of M.S. more comprehensively than in former newsletter. You are reminded that the reason for introducing the Swank Low Fat Diet in 1948-49 was the observation that M.S. only occurs frequently where much fat is consumed (Swank, R.L. Multiple Sclerosis; A correlation of its Incidence with Dietary Fat. Am. J. Med. Sci., 220:421-430, 1950; Alter, M. Yamoor, M., Harske, M. Multiple Sclerosis - Twenty Years on a Low Fat Diet. Arch. Neurol. 23:460-74, 1970), and our book "The M.S. Diet Book" by Swank and Dugan, published by Doubleday & Co. 1987.

The average fat intake of Americans, Canadians, Northern Europeans, and Britians is approximately 150 grams a day. Any reduction in this intake is commonly referred to as a low fat diet. The Swank Low Fat Diet, however, is unique in that the saturated fat of animal origin plus margarine, which is partially saturated vegetable oil, is reduced to no more than 15 grams daily. This is an approximate reduction of 90% in the fat intake. Many other diets reduce the fat intake much less, and until recently the Heart Diet has been one of those in which the fat reduction was moderate. However, recently the fat in the American Heart Diet has been reduced to about the same level advocated for the Swank Low Fat Diet, which has been in use since 1949-1950.

To make the diet more palatable, and at the same time not impair its therapeutic value for M.S. patients, vegetable oils

HOW IT ALL BEGAN - SWANK DIET - cont.

were added; the minimum recommended intake being 20 grams and maximum 50 grams per day. They were added in 1951-52 following our observation of the high oil intakes in the Mediterranean area and high fish oil intakes in Northern Norway. In both areas the saturated fat intake was very low and the incidence of M.S. very low.

Thru the years we kept a record of both fat and oil intakes in our patients. Gradually it became clear that for completely satisfactory results the restriction of fat below 15 grams daily is very important. When it is increased by just 10 grams daily the condition of patients will gradually deteriorate even though they no longer experience exacerbations of disease, or the frequency of exacerbations is extremely low. As a matter of fact, a reduction of fat intake to about 50 grams a day will greatly reduce or stop exacerbations of the disease, but will not prevent deterioration and subsequent disability from occurring about as rapidly as it does in patients on high fat diet.

This observation has inclined us to the belief that M.S. patients have a metabolic defect which prevents them from being able to utilize or metabolize saturated fats in a normal way. Unsaturated fats, on the other hand, are well tolerated (or metabolized) and can therefore be substituted for saturated fats up to a point; in our experence up to 20 to 50 grams per day.

When the unsaturated oils are processed to margarine they are rendered partially or entirely saturated and, therefore, assume the properties of saturated fats and are treated as saturated fats by the metabolic system of M.S. patients. They are therefore not allowed on the Swank Low Fat Diet.

When we introduced the Swank Low Fat Diet we did not know how sensitive patients would be to fat, but felt that regardless of our recommendations patients would vary both their fat and oil intakes. By keeping records of their fat and oil intakes we hoped to determine the degree of sensitivity to both. With reduction of fat intake to 20 grams or less (average 17 grams/day) the rate of deterioration and deaths sharply decreased. Increasing the fat intakes by 10 grams or more daily to an average of 25 grams per day resulted in a sharply increased rate of deterioration and death.

Because oil intake increased as the fat intakes decreased an increased oil intake was associated with improvement in the patients. Figure 1 shows the decrease in exacerbation rate which occurred in our patients consuming 30 grams or less fat per day. However, note that only those consuming 20 grams or less of fat daily failed to deteriorate rapidly or have a high death rate (Figure 2).

YOU ARE WHAT YOU EAT - CHEESE AND MORE !!!

Although the diet allows 15 grams of saturated fat per day, most patients who keep their fat intake below this level seem to have more energy.

It is our suggestion that patients should attempt to maintain a fat intake below 15 grams whenever possible.

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Due to the increase in heart disease, more low fat products have been developed. This is also of value to our patients. The following products are new on the market and can be eaten in limited amounts.

YOU ARE WHAT YOU EAT - CHEESE AND MORE - cont.

SOY KAAS CHEESE: This tasty new cheese is available in 3 types: Mozzarella, Cheddar, and Jalapeno. One ounce contains 1.3 grams of saturated fat. You must eat no more than 3 ounces per serving and this is to be counted as 1 teaspoon saturated fat. This cheese can be eaten frequently but not on the same day that you eat red meat or an egg. It is available at Natures Natural Food Store in Portland and Beaverton, or it can be ordered from your local natural food store. It is distributed by American Natural Snacks; P.O. Box 1067, St. Augustine, Florida 32085.

DARI LITE COTTAGE CHEESE: This product contains less than 1 percent milk fat. One/half cup contains 1 gram of saturated fat. It does not have to be rinsed. The distributor is Darigold. It is available in most markets.

T.C.B.Y. FROZEN YOGURT: This frozen yogurt contains half the saturated fat of most other frozen yogurts available. A small 5 ounce serving contains approximately 2 grams saturated fat. This must be counted in your saturated fat allowance for the day. Eat no more than 1 small 5 ounce serving. Do not eat this on the same day as you have red meat or an egg.

COLOMBO FROZEN YOGURT: This frozen yogurt contains 2 grams of saturated fat per 4 ounces. Eat no more than a 4 ounce serving and count in you saturated fat intake for the day.

WEIGHT WATCHERS FROSTED TREAT: This is a soft serve dessert. It is difficult to find. It is available at Bresslers Ice Cream Stores. A 4.2 ounce serving contains 1 gram of saturated fat.

CANOLA OIL: This new oil is permissible. It is available in most markets.

TOFU ENCHILADA VERDE: For those patients who feel they need an occasinal fast food here is one that is permissible. The ingredients consist of Tofu, green chilies and vegetables, tomato sauce, and corn tortillas. One serving contains 1 teaspoon of unsaturated fat (oil). It is available in natural food stores.

MOLLY McBUTTER: This product imparts the taste of butter. It is a light dry powder when sprinkled lightly on food giving a buttery flavor. It contains less than 1 gram of saturated fat per teaspoon. It is available in most grocery stores. Use sparingly.

ALBA DAIRY LIGHT: This is an instant nonfat milk powder for coffee or tea. It is packaged in very small envelopes and can be carried with you when eating out. This product contains 0 grams of saturated fat.

REMEMBER YOUR SATURATED FAT INTAKE MUST NEVER EXCEED 15 GRAMS (3 teaspoons) **PER DAY.**

HOLIDAY COOKING

Fresh and frozen non-injected turkeys are available at Howards on Scholls, 1222 SW Scholls Ferry Road, Tigard, Oregon and Howards on Murray, 14555 SW Teal Blvd, Beaverton, Oregon.

SUGGESTIONS PLEASE ???

In an attempt to establish an effective Multiple Sclerosis Clinic at the OHSU, we would like suggestions from our patients as to what they would like made available to them as treatment options for their disease. Send your suggestions to our office. We would like to hear from you as soon as possible.

MISCELLANEOUS OFFICE NEWS

The M.S. Care and Share Group in Oregon City meets on the last Monday of each month at the Zion Lutheran Church. This is located on Madison Street, between 7th and 8th. Everybody is welcome. For further information call Alice Baughman at 656-6197 (evenings).

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Please note that in the new edition of the Swank M.S. Diet Book there is a publishing error. The heading at the top of page 118 should not be FISH but should be BEEF, POULTRY, AND GAME, and the amounts listed equals 1 teaspoon of **FAT** not OIL.

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From December 18th thru January 4th, Dr. Swank, Barbara, and Barb will be on vacation. Tony will be in the office to take telephone calls. Also the office will be closed the first week in March.

Please remember to cancel appointments you are unable to keep. Many patients are waiting for cancellations to see Dr. Swank.

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Many of you are now aware that our telephone number has been changed to 279-8370. All prefixes at the Medical School have been changed from 225 to 279.

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When ordering cod liver oil by mail, make your check out to OHSU Foundation Swank MS Research for $16.50, and mail your check to our office. We will then mail your order to you.

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With the busy telphone situation in mind, if at all possible, please write your non-emergency requests in. It is likely that writing will be faster than calling. And, please remember, we cannot release medical information about you without a signed authorization from you in your file.

RESEARCH FUNDING

I need to remind you again that we are constantly in need of research funds. In our last newsletter we briefly outlined one project which has recently added to our research agenda. We have since added a second project. This one concerns what is known as streaming potentials which develop when fluids pass thru tubes. We have reason to beleive that these potentials in M.S. patients differ from normal. We plan to learn if the difference is real or just conjecture. As in the past we are asking those of you able to do so to help finance this work. The form below should be completed and accompany your donation to us.

Mail to: Roy L. Swank, M.D., Ph.D., L-104
3181 SW Sam Jackson Park Road
Portland, OR 97201

Make checks payable to: O.H.S.U. Foundation, Swank M.S. Research

Contributors Name: _____

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Amount of Donation: _____