RUTGERS
Robert Wood Johnson Medical School

Title of Study: Effect of a high-fiber supplement on Multiple Sclerosis
Principal Investigator: Dr. Suhayl Dhib-Jalbut
IND 153352

STUDY SUMMARY: Multiple sclerosis (MS) is a disease of central nervous system (CNS), which is made up of the brain, spinal cord, and optic nerves. It is caused when body's own immune system attack CNS. The change in normal gut bacteria population (also known as gut dysbiosis) is associated with increased risk of MS. However, there is no viable treatment available to correct gut dysbiosis. Since high-fiber supplement (HFS) can promote the growth of healthy bacteria in the gut, we propose to investigate the effect of specially designed HFS on the growth of health promoting gut bacteria and development of beneficial immune cells in MS patients.

P**urpose of the research**: If you take part in the research, you will be asked to give (3) blood & (3) stool samples over the course of 12 weeks. Healthy volunteers and MS patient may be placed in the group that will be asked to drink a HFS before meals.

Possible burden: Possible side effects from HFS. Discomfort during blood draw. Inconvenience due to stool collection. Participants will be required to use contraception methods.

An alternative to taking part in the research study:
Your alternative to taking part in the research study is not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of you if you choose to take part in it. If you have any questions now or during the study, if you choose to take part, you should feel free to ask them and should expect to be given answers you completely understand. After your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You are not giving up any of your legal rights by agreeing to take part in this research or by signing this consent form.

Who is conducting this study?
Dr. Suhayl Dhib- Jalbut is the Principal Investigator of this research study. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team.

Dr. Suhayl Dhib- Jalbut may be reached at **(732) 235-7099 or (732) 235-8593**

The principal investigator or another member of the study team will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.

Sponsor of the Study: National Multiple Sclerosis Society

Why is this study being done?
Multiple sclerosis (MS) is a disease of central nervous system (CNS), which is made up of the brain, spinal cord, and optic nerves. It is caused when body's own immune system attack CNS. The change in normal gut bacteria population (also known as gut dysbiosis) may be associated with increased risk of MS. However, there is no viable treatment available to correct gut dysbiosis. Since HFS intake may promote the growth of healthy bacteria in the gut, we propose to investigate the effect of specially designed HFS on the growth of health promoting gut bacteria and development of beneficial immune cells in MS patients.

Additionally, it is necessary to find an indicator for gut dysbiosis in MS. Since we found that fecal Lipocalin-2 (Lcn-2) is a biomarker of gut dysbiosis-mediated MS like disease in animal models, we will investigate the association of fecal Lcn-2 levels with MS. If this result is positive, fecal Lcn-2 could become one of the biomarkers for disease worsening.

Who may take part in this study and who may not?

You are eligible to participate in this study if,

1. Patients with first clinical event who meet the McDonald criteria for definite Multiple Sclerosis. McDonald criteria is a set of guidelines used by the practicing physician (doctor) to diagnose Multiple Sclerosis. These guidelines include symptoms and use of magnetic resonance imaging (MRI) of the brain and spinal cord.
2. Diagnosed with definite Relapsing Remitting MS patients.
3. Males and females ages 21-65 (MS patients and healthy volunteers)
4. **Healthy volunteers without any chronic disease will be used as a healthy control in this study.**

You are not eligible to participate in this study if,

1. Primary or Secondary Progressive MS.
2. Patients with autoimmune diseases (diseases that attack your own immune system; such as Lupus, Rheumatoid Arthritis…).
3. Having received prior chemotherapy.

4. Pregnant women.
5. Cognitively impaired (can not make decisions for yourself)
6. Antibiotic use within last 6 months.
7. Probiotic use within the last 2 months.

8. Self-reported allergy or intolerance to any ingredients in the fiber supplement.
9. Self-reported or diagnosed gastrointestinal disorders (such as; Irritable Bowel Syndrome, Diverticulitis, Chron's Disease)
10. Active or history of malignant tumors

Why have I been asked to take part in this study?
To test whether HFS can promote the growth of healthy bacteria in the gut of MS patients, we will recruit MS patients and healthy individuals as controls.

How long will the study take and how many subjects will take part?
Study participation will take 12 weeks.
The study will enroll 50 MS patients and 50 healthy volunteers.

What will I be asked to do if I take part in this study?

There will be 4 groups in the study:
Group A - 25 MS patients who will take a HFS (high fiber supplement) two times per day
Group B - 25 MS patients who will NOT be given any high fiber supplement
Group C - 25 Healthy Volunteers who do not have MS will take HFS two times per day
Group D - 25 Healthy Volunteers who do not have MS *(will not be given high fiber supplement).*

All participants are required to provide blood and stool samples three times. The samples will be used for the experiments, and it will take approximately 1 years to complete the study.

MS patients and healthy volunteers need to visit the MS Clinic **three** times.

1st Visit
*Blood collection
Instruction on Stool Collection & Stool collection kits given.
Instruction on High Fiber Supplement **(Group A & C only)**

2nd Visit - after 8 weeks
*Blood and stool collection

3rd Visit - after 12 weeks
*Blood and stool collection.

*NOTE: It is requested that all blood work be fasting. Nothing to eat or drink 10-12 hours before blood draw. You may have water &/or black coffee /tea.

If any MS patients develops an MS flare up (relapse), blood and stool will be also collected during relapse. MS patients from Group A & B with an acute MS relapse will be asked to provide 1 more blood and 1 more stool sample during this flare up and remission. You will need

to sign a separate consent form for these extra samples. This may require an extra visit to the MS center and you will need to take stool sample to the lab in Piscataway, NJ.

Group A and Group C only: For Healthy donors and MS patients who have been selected to receive the HFS, they will consume the HFS in the form of a drink to achieve a dietary fiber intake of 60 g/day for 12 weeks. The supplement contains a mixture of soluble and insoluble fibers from inulin, Fibersol-2, oat bran, corn bran, wheat bran and sorghum bran. Participants will be asked to mix one sachet of the supplement with water and drink it 2 times per day before each main meal. Participants in the high fiber supplement group **(Group A & C)** will be contacted via phone during first week of intervention and every month thereafter to discuss consumption of high fiber supplement. Since the risks of study drug on embryofetal development are unknown, participants will be required to use contraception methods.
Men and women of childbearing potential participating in this study will be required to use contraception from study recruitment until 30 days after the last day of study participation. Acceptable forms of contraception:

For men with female partners of childbearing potential:
1. Agree to use male condom.
2. Abstinence is an acceptable method only if it is consistent with the preferred and usual lifestyle of the patient

For women of childbearing potential:
1. Agree to use highly effective contraception method below:
1-1. Combined (estrogen and progesterone-containing) hormonal contraception by oral, intravaginal, or transdermal method.
1-2. Progesterone-only hormonal contraception by oral or injectable method.
1-3. Intrauterine device.
1-4. Bilateral tubal occlusion.
1-5. Vasectomized partner.
2. Abstinence is an acceptable method only if it is consistent with the preferred and usual lifestyle of the patient.

Men should refrain from donating sperm and women from donating eggs during the specified duration as well.

Stool & Blood Sample (Groups A, B, C & D)

- Participants will collect stool sample at home at any time of day without any laxative or dietary restrictions. A kit will be provided for fecal sample collection, which includes a sealable bowl to contain the sample, ice packs to keep the sample cold, and a carrier bag to transport the sample. **Each participant will need to transport stool samples within 2 hours of collection to the laboratory in Piscataway**. Fecal samples from participants will be transplanted to bacteria free mice to examine the effect of gut bacteria on CNS disease development.

Lab Address:683 Hoes lane West, SPH/RWJMS Building, Rm 166, Piscataway NJ 08854

Parking: Parking Lot A of SPH/RWJMS Building.

Lab Hours for specimen drop off: Monday –Friday 9:30-1pm

If participants cannot bring the stool sample to the MS research laboratory, our lab staff will coordinate pick up of the stool sample from the participants' home.

- Blood sample (80ml – approximately 5 tablespoons) will be collected three times during the study.

What are the risks of harm or discomforts I might experience if I take part in this study?
1) The most encountered side effect of a blood draw is bruising at the site of the needle puncture. There is a small possibility of infection. However, infection is rare.
2) Collection of fecal samples at home may impose inconvenience for the participants and/or their families.
3) MS patients and Healthy volunteers who will consume the fiber supplement may experience gastrointestinal symptoms (e.g. bloating, flatulence, diarrhea, constipation or cramping) when they consume the fiber supplement. However, these discomforts are minor, and they should not last longer than a few hours.
4)- Men with female partners of childbearing potential and for women of childbearing potential will be required to use acceptable contraception.

Are there any benefits to me if I choose to take part in this study?
Since HFS can promote the growth of healthy promoting bacteria and development of beneficial immune cells, consumption of HFS could be beneficial nutritional supplement in addition to drugs in halting MS worsening.
For those MS patients and Healthy volunteers not taking the high fiber supplement there will be no additional benefit to your study participation.

What are my alternatives if I do not want to take part in this study?
Your only choice is not to take part in this study. Your choice to participate or not to participate will in no way affect your treatment.

How will I know if new information is learned that may affect whether I am willing to stay in the study?
During the study, you will be updated about any new information that may affect whether you are willing to continue taking part in the study. If new information is learned that may affect you after the study or your follow-up is completed, you will be contacted.

Will there be any cost to me to take Part in this study?
There will be no cost to you to take part in this study.

Will I be paid to take part in this study?
You will be paid $100 for your participation in this research study. The $100 gift card will be given to you upon completion of study participation.

How will information about me be kept private or confidential?
All efforts will be made to keep your personal information in your research record confidential, but total confidentiality cannot be guaranteed.
Records will be stored in a locked office, only study personnel will have access to study documents.

What will happen if I do not wish to take part in the study or if I later decide not to stay in the study?
It is your choice whether to take part in the research. You may choose to take part, not to take part or you may change your mind and withdraw from the study at any time.

If you do not want to enter the study or decide to stop taking part, your relationship with the study staff will not change, and you may do so without penalty and without loss of benefits to which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you must do this in writing to:

Dr. Suhayl Dhib-Jalbut
Rutgers- Robert Wood Johnson Medical School
125 Paterson Street Suite 6100
New Brunswick NJ 08901

If you decide to withdraw from the study for any reason, you may be asked to return for at least one additional visit for safety reasons.

Who can I contact if I have questions?
If you have questions about taking part in this study or if you feel you may have suffered a research related injury, you can contact the Principal Investigator.

Dr. Suhayl Dhib-Jalbut
Neurology
732-235-7099

If you have questions about your rights as a research subject, you can contact the Rutgers IRB Director at:
Arts and Sciences IRB, 335 George St., Liberty Plaza Ste. 3200, New Brunswick, NJ 08901
(732) 235-2866

-or the-
Rutgers Human Subjects Protection Program at
(973) 972-1149, email us at humansubjects@ored.rutgers.edu.,
or write us at 65 Bergen St., Suite 507, Newark, NJ 07107.

PERMISSION (AUTHORIZATION) TO USE OR SHARE HEALTH INFORMATION THAT IDENTIFIES YOU FOR A RESEARCH STUDY

The next few paragraphs tell you about how investigators want to use and share identifiable health information from your medical record in this research. Your information will only be used as described here or as allowed or required by law. If you sign this consent form, you agree to let the investigators use your identifiable health information in the research and share it with others as described below. Ask questions if there is something you do not understand.

What Is the Purpose Of The Research And How Will My Information Be Used?
The change in gut bacteria is associated with MS. However, there is no treatment available to increase beneficial bacteria. Since intake of HFS is associated with the growth of healthy bacteria and immune cells in the gut, we propose to investigate the effect of specially designed high-fiber supplement in MS. This will be accomplished by conducting laboratory tests on stool and blood samples. Therefore, it would be necessary for the researchers (primarily the Principal Investigator and Study Nurse) to have access to your medical records to determine whether you are responding to the high fiber supplement or not.

What Information About Me Will Be Used?
- Information in your medical record
- Hospital discharge summaries
- Radiology records or images (MRI, CT, PET scans)
- Medical history or treatment
- Medications
- Laboratory/diagnostic tests or imaging

Who May Use, Share or Receive My Information?
The research team may use or share your information collected or created for this study with the following people and institutions:
- Rutgers University Investigators Involved In The Study
- The Rutgers University Institutional Review Board and Compliance Boards
- The Office for Human Research Protections in the U.S. Dept. of Health and Human Services

Will I Be Able to Review My Research Record While the Research Is Ongoing?

No. We are not able to share information in the research records with you until the study is over. To ask for this information, please contact the Principal Investigator, the person in charge of this research study.

Do I Have to Give My Permission?
No. You do not have to permit use of your information. But, if you do not give permission, you cannot take part in this study. (Saying no does not stop you from getting medical care or other benefits you are eligible for outside of this study.)

If I Say Yes Now, Can I Change My Mind and Take Away My Permission Later?
Yes. You may change your mind and not allow the continued use of your information (and to stop taking part in the study) at any time. If you take away permission, your information will no longer be used or shared in the study, but we will not be able to take back information that has already been used or shared with others. If you say yes now but change your mind later for use of your information in the research, you must write to the researcher and tell him or her of your decision:

Dr. Suhayl Dhib-Jalbut
Rutgers - Robert Wood Johnson Medical School
125 Paterson Street Suite 6100
New Brunswick NJ 08901

How Long Will My Permission Last?
There is no set date at which your authorization will expire. This is because the information used and created during the study may be analyzed for many years, and it is not possible to know when this will be complete.

AGREEMENT TO PARTICIPATE

Subject Consent:

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name (Print):_____

Subject Signature:_____ Date:_____

Signature of Investigator/Individual Obtaining Consent:

To the best of my ability, I have explained and discussed all the important details about the study including all of the information contained in this consent form.

Investigator/Person Obtaining Consent (Print):_____

Signature:_____ Date: _____