Columbia University Human Subjects Protocol Data Sheet

General Information

Protocol:	AAAR8208(M00Y04)	**Protocol Status:**	Approved
Effective Date:	02/05/2021	**Expiration Date:**	02/04/2022
Originating Department Code:		OPH Ophthalmology (753000X)	
Principal Investigator:		Liebmann, Jeffrey (jml2314)	
From what Columbia campus does this research originate:		Medical Center	
Title:	Nutritional supplements and performance during visual field testing		
Protocol Version #:	2	**Abbreviated Title:**	Nutritional supplements and visual field testing
Was this protocol previously assigned a number by an IRB:		No	

Is the purpose of this submission to obtain a "Not Human Subjects Research" determination?

No

IRB Expedited Determination

8. Continuing review of research previously approved by the convened IRB as follows: (a) where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or (b) where no subjects have been enrolled and no additional risks have been identified; or (c) where the remaining research activities are limited to data analysis.

8c

Renewal Information

Enrollment status:

Closed to further enrollment: remaining research activities are limited to data analysis only

Provide any additional information necessary to explain the study status:

Subject enrollment has been completed, only data analysis will continued

Since the last renewal:

Have there been any changes in the relevant literature that would affect the study design or procedures?

No

Have there been any interim findings associated with this study?

No

Have there been any publications resulting from this study?

No

Have any participants been enrolled using the Short Form process?

No

Is there a Data Monitoring Committee (DMC), Data Safety Monitoring Board (DSMB), or other monitoring entity for this study?

No

Is an annual Progress Report required by the funding organization or coordinating center for this study?

No

Does this submission include a modification?

No

Has the consent form been revised in this submission?

No

Does this submission include a report of a protocol violation?

No

Attributes

Special review type: Check all that apply or check "None of the Above" box.

[ ]Review for 45 CFR 46.118 Determination (involvement of human subjects is anticipated but is not yet defined)

[ ]Funding review for Administrative IRB approval (such as for Center or Training Grants)

[x]None of the above

IRB of record information: Will a Columbia IRB be the IRB that is responsible for providing review, approval, and oversight for this study?

Yes

Select the most appropriate response:

Columbia will be the IRB of record for the study procedures conducted by Columbia researchers (Note: this response will apply to most submissions).

Is this research part of a multicenter study?

No

Please indicate if any of the following University resources are utilized:

[ ] Cancer Center Clinical Protocol Data Management Compliance Core (CPDM)

[ ] CTSA-Irving Institute Clinical Research Resource (CRR)

[ ] CTSA- Irving Institute Columbia Community Partnership for Health (CCPH)

[x] None of the above

Background

Abbreviated Submission:

The IRB has an abbreviated submission process for multicenter studies supported by industry or NIH cooperative groups (e.g., ACTG, HVTN, NCI oncology group studies, etc.), and other studies that have a complete stand-alone protocol. The process requires completion of all Rascal fields that provide information regarding local implementation of the study. However, entering study information into all of the relevant Rascal fields is not required, as the Columbia IRBs will rely on the attached stand-alone (e.g., sponsor's) protocol for review of the overall objectives.

If you select the Abbreviated Submission checkbox and a section is not covered by the attached stand-alone protocol, you will need to go back and provide this information in your submission.

Study Purpose and Rationale:

Provide pertinent background description with references that are related to the need to conduct this study. If this is a clinical trial, the background should include both preclinical and clinical data. Be brief and to the point.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

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Study Design:

Describe the methodology that will be used in this study, covering such factors as retrospective vs. prospective data collection, interventional vs. non-interventional, randomized vs. non-randomized, observational, experimental, ethnography, etc.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

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Statistical Procedures:

Provide sufficient details so that the adequacy of the statistical procedures can be evaluated including power calculations to justify the number of participants to be enrolled into the study. Definitions of subject terms such as enrolled and accrued as used for Rascal submissions can be found in the Subjects section.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

Exempt and Expedited

Is the purpose of this submission to obtain an exemption determination, in accordance with 45CFR46.101(b):

No

Is the purpose of this submission to seek expedited review , as per the federal categories referenced in 45CFR46.110?

No

Funding

Is there any external funding or support that is applied for or awarded, or are you the recipient of a gift, for this project?

No

Locations

Location Type	Facility Name	Domestic or International	Geographic Location	Local IRB Ethics Approval	Local Site Approval
Columbia/CUMC	ColumbiaDoctors Ophthalmoology				
NewYork-Presbyterian Hospital @ Columbia	Edward S. Harkness Eye Institute				

Personnel

UNI/Phone	Name	Role	Department	Edit/View	Obtaining Informed Consent
jml2314 516-662-2803	Liebmann, Jeffrey	Principal Investigator	OPH Ophthalmology (753000X)	Edit	Y
	Roles and Experience: Vice-chair and glaucoma specialist who will be recruiting patients from his clinic.				
cvd2109 347-834-7986	De Moraes, Carlos Gustavo	Investigator	OPH Ophthalmology (753000X)	Edit	Y
	Roles and Experience: Glaucoma specialist and chief of the Reading Center.				
dmb2196 919-943-1150	Blumberg, Dana	Investigator	OPH Ophthalmology (753000X)	View	Y
es3725 212-342-4586	Stidham, Elizabeth	Coordinator	OPH Ophthalmology (753000X)	Edit	Y
gac2126 212-305-2725	Cioffi, George	Investigator	OPH Ophthalmology (753000X)	View	Y
	Roles and Experience: Department chair and glaucoma specialist who will be recruiting patients from his clinic.				
lah112 212-342-4586	Hark, Lisa	Investigator	OPH Ophthalmology (753000X)	Edit	Y
	Roles and Experience: Director of Clinical Trials in Ophthalmology and Nutrition expert.				
ma3448 917-403-6751	Atakulova, Marzhan	Coordinator	OPH Ophthalmology (753000X)	Edit	Y

Training and COI

The PI must ensure that each individual that is added as personnel has met the training requirements for this study (http://www.cumc.columbia.edu/dept/irb/education/index.html). For help identifying which research compliance trainings you may be required to take, visit the Research Compliance Training Finder.

UNI	Name	COI	HIPAA	HSP (CITI)	Research with Minors (CITI)	FDA-Regulated Research (CITI)	S-I	CRC	Good Clinical Practice (GCP)	GCP - Third-party tracking	GCP Refresher	Genetic Research Consent
jml2314	Liebmann, Jeffrey	10/12/2020	01/27/2015	09/09/2020	09/09/2020	09/09/2020			02/06/2019			
cvd2109	De Moraes, Carlos Gustavo	09/21/2020	09/24/2014	02/02/2021	06/01/2015	01/13/2015			11/06/2019			
dmb2196	Blumberg, Dana	11/10/2020	06/14/2011	06/01/2018	06/01/2018	06/01/2018	11/18/2011		06/17/2019			
es3725	Stidham, Elizabeth	10/05/2020	08/20/2018	08/16/2018	08/16/2018	08/16/2018		03/06/2019	08/16/2018			12/03/2019
gac2126	Cioffi, George	07/20/2020	12/03/2012	09/13/2019		09/13/2016			09/07/2019			
lah112	Hark, Lisa	12/10/2020	10/04/2017	07/01/2020	09/11/2017	09/11/2017	04/02/2018		07/01/2020			

ma3448	Atakulova, Marzhan	09/16/2020	01/28/2015	12/07/2020	01/29/2020	05/20/2014		02/05/2015	08/23/2019			11/22/2019

Departmental Approvers

Electronic Signature: Bonnie Wang (753000X) - Division Administrator Date: 02/02/2021

Electronic Signature: Jeffrey Liebmann (753000X) - Principal Investigator Date: 02/02/2021

Privacy & Data Security

Indicate the methods by which data/research records will be maintained or stored (select all that apply):

[x]Hardcopy (i.e., paper)

Describe where and how the data will be stored:

all research related paperwork will be stored in a locked research facility with restricted access

[x]Electronic

Where will the data be stored?

Y

[x]On a System

[x]On an Endpoint

Identify what type of endpoint will be used (select all that apply):

[ ]Desktop Computer

[ ]Laptop Computer

[ ]Mobile Device

[x]Other

Portable Device

encrypted hard drive

Does this study involve the receipt or collection of Sensitive Data?

Yes

If any Sensitive Data is lost or stolen as part of your research protocol, you must inform both the IRB and the appropriate IT Security Office (CUMC IT Security if at CUMC; CUIT if at any other University campus).

What type of Sensitive Data will be obtained or collected? Select all that apply:

[ ]Personally Identifiable Information (PII), including Social Security Numbers (SSN)

Will Social Security Numbers (SSNs) be collected for any purpose?

[x]Protected Health Information (PHI), including a Limited Data Set (LDS)

If any PHI is lost or stolen, you must inform both the IRB and the Office of HIPAA Compliance.

Indicate plans for secure storage of electronic sensitive data: check all that apply

[ ]Sensitive data will not be stored in electronic format

[ ]Sensitive data will be stored on a multi-user system
[x]Sensitive data will be stored on an encrypted endpoint

By Selecting an Endpoint Device and approving this protocol for submission to the IRB, the PI is attesting that the device and any removable media that may be used have been or will be registered and/or will be maintained in compliance with the University's Information Security Charter and all related policies. It is important that this information is updated, during the course of the study, as new devices are added.

Provide a description of how the confidentiality of study data will be ensured, addressing concerns or protections that specifically relate to the data storage elements identified above (e.g. hard copy, electronic, system, and/or endpoint):

The information collected during this study will be kept in a desktop computer located in the co-investigator's office (Dr. De Moraes) at the Harkness Eye Institute, where only he and the PI will have access to the data. Subjects will be assigned a unique study ID number which will be used to identify the subject. Except when required by law, study information shared with persons and organizations outside of Columbia University Medical Center will not identify the subject by name, social security number, address, telephone number, or any other direct personal identifier. If the results of the research are published or presented at a scientific or medical meeting, subjects will not be identified. Otherwise, all results will be kept confidential and will not be divulged (except as required by law) without permission.

If your project is not NIH funded, has a Certificate of Confidentiality (CoC) been requested for this research?

No

Provide a description of the protections in place to safeguard participants' privacy while information is being collected:

-Conversations with the subject occur in private areas.
-Research intervention is conducted in a private area.
-Collection of sensitive information about subjects is limited to the amount necessary to achieve the aims of the research, so that no unneeded sensitive information is being collected.

Procedures

Is this project a clinical trial?

Yes

Is this project a clinical trial that requires registration with www.clinicaltrials.gov?

Yes

Has this study been registered with www.clinicaltrials.gov?

Yes

Please provide the registration number:

NCT03797469

Is this project associated with, or an extension of, an existing Rascal protocol?

No

Do study procedures involve any of the following?

Analysis of existing data and/or prospective record review

Yes

Audio and/or video recording of research subjects

No

Behavioral Intervention?

No

Biological specimens (collection or use of)

No

Cancer-related research

No

Drugs or Biologics

No

Future use of data and/or specimens

No

Genetic research

No

Human embryos or human embryonic stem cells

No

Imaging procedures or radiation

Yes

Medical Devices

No

Surgical procedures that would not otherwise be conducted or are beyond standard of care

No

Will any of the following qualitative research methods be used?

Survey/interview/questionnaire

Yes

NOTE: You must attach a PDF version of the survey(s)/interview(s)/questionnaire(s) to this protocol prior to submission.

Systematic observation of public or group behavior

No

Program evaluation

No

Will any of the following tests or evaluations be used?

Cognitive testing

Yes

Educational testing

No

Non-invasive physical measurements

No

Taste testing

No

Is there an external protocol that describes ALL procedures in this study?

Yes

[x]Check here if all procedures being conducted by Columbia researchers are detailed in the stand-alone protocol, or provide a detailed description of which procedures are being conducted by Columbia researchers.

Analysis of Existing Data and/or Prospective Record Review

Indicate whether the data that will be collected or utilized for the proposed study are in existence as of the current IRB submission date.

None of the data currently exist.

As this research involves the collection of data that will be generated after the IRB protocol is submitted, informed consent and HIPAA Authorization may be required from subjects.

Data will be obtained from (select all that apply):

[x] Columbia and/or NYP (e.g., departmental databases/systems, patient charts, Eclipsys, WebCIS, administrative/billing records, etc.)

Select all that apply:

[x] Data to be analyzed were or will be collected for clinical care

[ ] Data to be analyzed were or will be collected for nonresearch purposes other than for clinical care (e.g., student records, class evaluation, administrative records, etc.,)

[ ] Data originate from an IRB approved protocol

[ ] Other

[ ] Outside Columbia and/or NYP:

Will a member of the research team be abstracting data directly from source documents?

No

If any existing data was obtained from a prior research study, was any member of the current research team involved (e.g., obtained consent, performed study procedures, conducted data analysis) in the project or procedures that collected and/or used identifiable information?

No

Indicate the manner in which the existing data and/or the records to be reviewed prospectively will be collected or received:
(Select all that apply. At least one must be selected.)

[ ] Contains direct identifiers (e.g., name, MRN, date of birth)
[x] Coded and the research team has the key and can link the data to direct identifiers
[ ] Coded and the research team does not have access to the key to link data to direct identifiers
[ ] Prior to the receipt of the data by the research team submitting this protocol, the identifiers will be removed and no link will remain.
[ ] The information was originally or will be collected without identifiers

If data are collected or received at any point in time with direct identifiers or linked to identifiers, then the data are considered to be identifiable, and the requirements for Informed Consent (or a waiver, if applicable) and HIPAA Authorization (or a waiver, if applicable) apply. The necessary information will need to be included in the respective sections of the submission.

Imaging Procedures/Radiation Therapy

Will a contrast agent (e.g. gadolinium) be used in conjunction with radiation exposure that goes beyond the parameters established for the applicable standard of care (SOC), or will a contrast agent be administered for research purposes only?
No

For each type of radiation exposure (e.g., ionizing: CT, X-ray; non-ionizing: MRI), identify the procedure and whether the administration (e.g., radiation dosage, number or type of scans) is clinically indicated and in accordance with the parameters established for the applicable standard of care (SOC), or is "beyond" these parameters (i.e., includes procedures or exposure for research purposes only).

Procedure(s) Involving Ionizing Radiation
No data to display

Procedure(s) Involving Non-Ionizing Radiation

Procedure	The exposure to:
Other : OCT	As established for the applicable SOC

Recruitment And Consent

Recruitment:

Will you obtain information or biospecimens for purposes of screening or determining eligibility?

No

Describe how participants will be recruited:

Glaucoma patients seen at the CUIMC Department of Ophthalmology by the investigators and who meet our inclusion/ exclusion criteria will be asked to participate in the study. Those who are eligible will be contacted by the attending physician, who will briefly describe the study and ask if the patient would be willing to speak to the research coordinator about the study details. If OK, the research coordinator will approach the patient during their office visit, describe the study in detail, provide consent forms, and clarify any questions prior to having them sign the form.

Select all methods by which participants will be recruited:

[ ] Study does not involve recruitment procedures
[x] Person to Person
[ ] Radio
[ ] Newspapers
[ ] Direct Mail
[ ] Website
[ ] Email
[ ] Television
[ ] Telephone
[ ] Flyer/Handout
[ ] Newsletter/Magazine/Journal
[ ] ResearchMatch
[x] CUMC RecruitMe

Additional Study Information: Please add a description of your study as you would like it to be displayed on the RecruitMe website.

Glaucoma is the leading cause of irreversible blindness worldwide. The most important test to detect progression is visual field testing. However, this test is very subjective, often unreliable, and variable. One of the main causes of unreliable tests is the lack of attentiveness or concentration during the test. Previous studies have shown that listening to Mozart or taking vitamin B12 can improve the reliability of this test. Recent studies have suggested that over-the-counter medications such as nicotinamide (vitamin B3) and pyruvate can also improve the performance during this test. This can ultimately reduce costs due to repeated testing and increase doctor's certainty when analyzing the results of this test. We want to test whether these over-the-counter nutritional supplements can improve patients' performance during visual field testing and thus make the test results more reliable.

Informed Consent Process:

Informed Consent Process, Waiver or Exemption: Select all that apply

[x] Informed consent with written documentation will be obtained from the research participant or appropriate representative.

Documentation of informed consent is applicable to:

The study in its entirety

Identify the portion of the study (e.g., prospective portion, focus groups, substudy 2) or subject population for which documentation of consent will be obtained::

Documentation of participation will be obtained from::

[x] Adult participants
[ ] Parent/Guardian providing permission for a child's involvement
[ ] Legally Authorized Representatives (LARs)

Describe how participants' written consent will be obtained:

The study coordinator will approach patients who have already spoken to the attending physician on the day of their office visit. The coordinator will describe the study in detail, provide consent forms, and clarify any questions prior to having them sign the form.

[ ] Informed consent will be obtained but a waiver of written documentation of consent (i.e., agreement to participate in the research without a signature on a consent document) is requested.

[ ] A waiver of some or all elements of informed consent (45 CFR 46.116) is requested.

[ ] Planned Emergency Research with an exception from informed consent as per 21 CFR 50.24.

[ ] This is exempt research.

Subject Language

Enrollment of non-English speaking subjects is not expected.

During the course of the study, if non-English speaking subjects are encountered, refer to the IRB's policy on the Enrollment of Non-English Speaking Subjects in Research for further details (http://www.cumc.columbia.edu/dept/irb/policies/documents/Nonenglishspeakingsubjects.Revised.FINALDRAFT.111909.website.doc

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Capacity to Provide Consent:

Do you anticipate using surrogate consent or is research being done in a population where capacity to consent may be questionable?

No

Research Aims & Abstracts

Research Question(s)/Hypothesis(es):

We are testing the the hypothesis that a combination of nutritional supplements (nicotinamide and pyruvate) can improve glaucoma patients' performance during visual field testing compared to placebo.

Scientific Abstract:

Glaucoma is a progressive, chronic optic neuropathy and the leading cause of irreversible blindness worldwide.[1] Because of its progressive nature, glaucoma treatment aims to slow the

rate of loss of visual function during the patient's lifetime.[2] The reference standard to measure visual function in glaucoma is standard automated perimetry (SAP), also called visual field testing. This is a subjective, behavioral test that measures contrast sensitivity at different parts of the field of vision. As the result of progressive glaucomatous damage, the sensitivity at different parts of the field (and the global field in general) decreases over time. In clinical practice and in clinical trials,[3-5] patients undergo visual field testing at regular intervals in order to define whether progressive changes have occurred as well as how rapid the rate of change is.Notwithstanding its role as a reference standard to track progression, visual field results are highly variable within and between sessions. This is part due to its subjective nature, which ultimately depends upon the test reliability, patients' level of experience with the test, inherent noise form the machine itself, variability due to disease severity, and, importantly, the level of patient attentiveness during the test. Visual field testing lasts about 6-8 minutes per eye, on average. The test is done in a quiet, dark room and the patient is asked to look at a target inside a bowl during the test while stimuli of different contrast are presented randomly. It is not uncommon for patients to appear for testing already feeling asleep or tired, and even less uncommon for them to lose concentration or attentiveness during the test, even falling asleep. This is particularly common among the elderly, patients on systemic medications that affect their concentration, patients who work on long shifts, and those with systemic diseases, such as hypothyroidism and dementia.Because of the importance of visual field testing for decision making, the aforementioned limitations often prevent or delay treatment changes, as patients are then asked to return for repeated testing when the test results have poor quality. Therefore, numerous attempts have been made to try to optimize patients' performance during the test. Some of the approaches reported to date are listening to classical music,[6-8] mitigating background noise,[6] and use of nutritional supplements.[9-11]Studies in which patients were given Vitamin B12 have shown significant performance improvement during visual field testing,[9-11] suggesting a potential beneficial effect when trying to minimize noise and variability during this subjective visual function test. There is also large evidence in the literature suggesting that nicotinamide and pyruvate can help improve cognition and well-being in patients with different systemic conditions.[12-16] More recently, nicotinamide has been tested in animal models of glaucoma, including model D2 (mouse), retinal explant model glaucoma (mouse), and a TNFa-induced retinal ganglion cell degeneration model (mouse).[17,18] In addition, pyruvate has been tested on D2 glaucoma (mouse), retinal explant model (mouse), ocular hypertension model (rat), and mixed retinal neuronal culture (rat). Finally, two important editorials were recently published and discussed the potential implications of these findings in humans.[19,20]Our purpose it to determine if a combination of nicotinamide and pyruvate (N&P) can help improve the reliability and quality of visual field tests in patients with glaucomatous visual field loss when compared to placebo.Of note, we are not testing a new drug to treat glaucoma. Similar to previous studies evaluating performance during a subjective behavioral test,[6-11] we aim to test whether nutritional supplements can help overcome limitations of the test due to lack of concentration and attentiveness. References: 1-Tham YC, Li X, Wong TY, Quigley HA, Aung T, Cheng CY. Global prevalence of glaucoma and projections of glaucoma burden through 2040: a systematic review and meta-analysis. Ophthalmology. 2014;121(11):2081-90.2-Weinreb RN, Khaw PT. Primary open-angle glaucoma. Lancet. 2004;363(9422):1711-20.3-Gordon MO, Beiser JA, Brandt JD, et al. The Ocular Hypertension Treatment Study: baseline factors that predict the onset of primary open-angle glaucoma. Arch Ophthalmol. 2002;120(6):714-720; discussion 829-730.4-Leske MC, Heijl A, Hussein M, Bengtsson B, Hyman L, Komaroff E. Factors for glaucoma

progression and the effect of treatment: the Early Manifest Glaucoma Trial. Arch Ophthalmol. 2003;121(1):48-56.5-The Advanced Glaucoma Intervention Study (AGIS): 7. The relationship between control of intraocular pressure and visual field deterioration.The AGIS Investigators. Am J Ophthalmol. 2000;130(4):429-440. 6- Shue B, Chatterjee A, Fudemberg S, Katz LJ, Moster MR, Navarro MJ, Pro M, Schmidt C, Spaeth GL, Stirbu O, Yalcin A, Myers JS.The effects of Mozart's music on the performance of glaucoma patients on automated perimetry. Invest Ophthalmol Vis Sci. 2011;52(10):7347-9.7- Marques JC, Vanessa AC, Fiorelli MB, Kasahara N. Improved automated perimetry performance in elderly subjects after listening to Mozart. Clinics. 2009;64(7):665-7. 8- Fiorelli VM1, Kasahara N, Cohen R, França AS, Della Paolera M, Mandia C Jr, de Almeida GV. Improved automated perimetry performance following exposure to Mozart. Br J Ophthalmol. 2006;90(5):543-5. 9- Algan, Vitte G, Pierre I, Marchal H.Value of using 5000 mcg hydroxocobalamin in treatment of visual deficiency in glaucomatous optic atrophy. Bull Soc Ophtalmol Fr. 1969;69(7):677-84.10-Chrzanowska-Srzednicka K.Effect of vitamin B 12 on betterment of retinal function in primary glaucoma. Klin Oczna. 1974;44(11):1183-7.11- Kishimoto M, Nakamori F. Effect of vitamin B12 on reduced visual function due to glaucoma. Nihon Ganka Kiyo. 1965;16(3):291-7.12- Kalman D, Colker CM, Wilets I, Roufs JB, Antonio J. The effects of pyruvate supplementation on body composition in overweight individuals. Nutrition. 1999;15(5):337-40.13-Stone MH, Sanborn K, Smith LL, O'Bryant HS, Hoke T, Utter AC, Johnson RL, Boros R, Hruby J, Pierce KC, Stone ME, Garner B. Effects Of In-season (5 Weeks) Creatine And Pyruvate Supplementation On Anaerobic Performance And Body Composition In American Football Players. Int J Sport Nutr. 1999;9(2):146-65.14- Rennie G, Chen AC, Dhillon H, Vardy J, Damian DL. Nicotinamide and neurocognitive function. Nutr Neurosci. 2015;18(5):193-200.15- Jia H, Li X, Gao H, Feng Z, Li X, Zhao L, Jia X, Zhang H, Liu J. High doses of nicotinamide prevent oxidative mitochondrial dysfunction in a cellular model and improve motor deficit in a Drosophila model of Parkinson's disease. J Neurosci Res. 2008;86(9):2083-90.16- Chi Y, Sauve AA. Nicotinamide riboside, a trace nutrient in foods, is a vitamin B3 with effects on energy metabolism and neuroprotection. Curr Opin Clin Nutr Metab Care. 2013;16(6):657-61.17- Williams PA, Harder JM, Foxworth NE, Cochran KE, Philip VM, Porciatti V, Smithies O, John SW. Vitamin B3 modulates mitochondrial vulnerability and prevents glaucoma in aged mice. Science. 2017;355(6326):756-760.18- Williams PA, Harder JM, Foxworth NE, Cardozo BH, Cochran KE, John SWM. Nicotinamide and WLDS Act Together to Prevent Neurodegeneration in Glaucoma. Front Neurosci. 2017;11:232.19-Liebmann JM, Cioffi GA. Nicking glaucoma with nicotinamide? N Engl J Med. 2017;376(21):2079-2081.20- Williams PA, Harder JM, John SWM. Glaucoma as a Metabolic Optic Neuropathy: Making the Case for Nicotinamide Treatment in Glaucoma. J Glaucoma. 2017;26(12):1161-1168.

Lay Abstract:

Glaucoma is the leading cause of irreversible blindness worldwide. The most important test to detect progression is visual field testing. However, this test is very subjective, often unreliable, and variable. One of the main causes of unreliable tests is the lack of attentiveness or concentration during the test. Previous studies have shown that listening to Mozart or taking vitamin B12 can improve the reliability of this test. Recent studies have suggested that over-the-counter medications such as nicotinamide (vitamin B3) and pyruvate can also improve the performance during this test. This can ultimately reduce costs due to repeated testing and increase doctor's certainty when analyzing the results of this test. We want to test whether these over-the-

counter nutritional supplements can improve patients' performance during visual field testing and thus make the test results more reliable.

Risks, Benefits & Monitoring

Abbreviated Submission:
The IRB has an abbreviated submission process for multicenter studies supported by industry or NIH cooperative groups (e.g., ACTG, HVTN, NCI oncology group studies, etc.), and other studies that have a complete stand-alone protocol. The process requires completion of all Rascal fields that provide information regarding local implementation of the study. However, entering study information into all of the relevant Rascal fields is not required, as the Columbia IRBs will rely on the attached stand-alone (e.g., sponsor's) protocol for review of the overall objectives. .
If you select the Abbreviated Submission checkbox and a section is not covered by the attached stand-alone protocol, you will need to go back and provide this information in your submission.

Potential Risks:
Provide information regarding all risks to participants that are directly related to participation in this protocol, including any potential for a breach of confidentiality. Risks associated with any of the items described in the Procedures section of this submission should be outlined here if they are not captured in a stand-alone protocol. Risks of procedures that individuals would be exposed to regardless of whether they choose to participate in this research need not be detailed in this section, unless evaluation of those risks is the focus of this research. When applicable, the likelihood of certain risks should be explained and data on risks that have been encountered in past studies should be provided.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

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Potential Benefits:
Provide information regarding any anticipated benefits of participating in this research. There should be a rational description of why such benefits are expected based on current knowledge. If there is unlikely to be direct benefit to participants/subjects, describe benefits to society. Please note that elements of participation such as compensation, access to medical care, receiving study results, etc. are not considered benefits of research participation.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

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Alternatives:
If this research involves an intervention that presents greater than minimal risk to participants, describe available alternative interventions and provide data to support their efficacy and/or availability. Note, participants always have the option not to participate in research.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next question

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Data and Safety Monitoring:
Describe how data and safety will be monitored locally and, if this is a multi-center study, how data and safety will be monitored across sites as well.

[x] Abbreviated Submission - This information is included in an attached stand-alone protocol. Proceed to the next

question

Subjects

Unless otherwise noted, the information entered in this section should reflect the number of subjects enrolled or accrued under the purview of Columbia researchers, whether at Columbia or elsewhere.

Target enrollment:

36

Number enrolled to date:

32

Number enrolled since the last renewal or, if this is the first renewal, since the initial approval:

4

Number anticipated to be enrolled in the next approval period:

0

Does this study involve screening/assessment procedures to determine subject eligibility?

Yes

Target accrual:

36

Number accrued to date:

32

Number accrued since the last renewal or, if this is the first renewal, since the initial approval:

38

Number anticipated to be accrued in the next approval period:

0

Of the number of subjects enrolled, or the number accrued for interventional studies with a screening process:

How many remain on the study?

0

How many are off study?

42

How many completed the study?

32

Have any withdrawn of their own initiative?

Yes

How many?

10

Please explain:

2 patients withdrew due to stomach discomfort from supplement and also due to schedule conflict, 1 patient withdrew due to not being able to discontinue current supplements, 6 patients withdrew due to COVID-19

Have any been removed by PI?

No

Have any been lost to follow-up?

No

Have any died while on study?

No

Have any subject complaints been received?

No

Is this a multi-center study?

No

Does this study have one or more components that apply to a subset of the overall study population (e.g. Phase 1/2, sub-studies)?

No

Of the number enrolled, or the number accrued for interventional studies with a screening process, indicate:

Population Gender

Females	Males	Non Specific
0%	0%	100%

Population Age

0-7	8-17	18-65	>65	Non Specific
0%	0%	0%	0%	100%

Population Race

American Indian/Alaskan Native	Asian	Native Hawaiian or Other Pacific Islander	Black or African American	White	More than One Race	Non-Specific
0%	0%	0%	0%	0%	0%	100%

Population Ethnicity

Hispanic or Latino	Not Hispanic or Latino	Non-Specific
0%	0%	100%

Vulnerable Populations as per 45 CFR 46:

Will children/minors be enrolled

No

Will pregnant women/fetuses/neonates be targeted for enrollment?

No

Will prisoners be targeted for enrollment?

No

Other Vulnerable Populations:

[ ]Individuals lacking capacity to provide consent

[ ]CU/NYPH Employees/Residents/Fellows/Interns/Students

[ ]Economically disadvantaged

[ ]Educationally disadvantaged

[ ]Non-English speaking

[ ]Other Vulnerable populations

[x]None of the Populations listed above will be targeted for Enrollment

Subject Population Justification:

The population seen in the investigators clinic are mostly white or black and speak English as first language.

Does this study involve compensation or reimbursement to subjects?

Yes

Describe and justify reimbursement/compensation:

$200 at the end of study

Are subjects eligible for compensation of $600 or more in a calendar year?

No

Attached Consent Forms

Number	Copied From	Form Type	Title	Active/InActive	Initiator
AABQ8400	AABQ8400	Consent	Nutritional supplements and visual field testing	Active	Elizabeth Stidham (es3725)

Documents

Archived	Document Identifier	Document Type	File Name	Active	Stamped	Date Attached	Created By
No	ICF clean	Consent Form/Addendum	Consent form October 2 clean.docx	Y	No	10/04/2018	Carlos Gustavo De Moraes (cvd2109)
No	Study timeline (appendix to Consent form)	Consent Form/Addendum	Study timeline (1).pdf	Y	No	04/27/2018	Laurence Butaud-Rebbaa (lb2643)
No	Study Timeline	Consent Form/Addendum	Study timeline.docx	Y	No	04/19/2018	Carlos Gustavo De Moraes (cvd2109)
No	ICF doc clean	Consent Form/Addendum	Vitamin B3 ICF Clean Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	ICF pdf clean	Consent Form/Addendum	Vitamin B3 ICF Clean Final.pdf	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	ICF tracked	Consent Form/Addendum (tracked)	Consent form October 2 tracked.docx	Y	No	10/04/2018	Carlos Gustavo De Moraes (cvd2109)
No	ICF doc Tracked	Consent Form/Addendum (tracked)	Vitamin B3 ICF Tracked Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Information to patients doc	Information Sheet/Verbal Script	B3 Patient Instructions March Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Information to patients	Information Sheet/Verbal Script	B3 Patient Instructions March Final.pdf	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Visual field brochure	Investigator Brochure/Package Insert/Device Manual	HFA Manual.pdf	Y	No	03/23/2018	Carlos Gustavo De Moraes (cvd2109)
No	B3 Adverse Event Log	Other	B3 Adverse Event Log.pdf	Y	No	03/02/2020	Marzhan Atakulova (ma3448)
No	R8208	Other	R8208.pdf	Y	No	04/11/2018	Laurence Butaud-Rebbaa (lb2643)
No	Sample size and power calculation	Other	Sample size calculation.pdf	Y	No	03/19/2018	Carlos Gustavo De Moraes (cvd2109)
No	Schedule Time Table doc	Standalone/Sponsor's Protocol	Table 1 VitB3 Study Schedule March Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Schedule Time Table pdf	Standalone/Sponsor's Protocol	Table 1 VitB3 Study Schedule March Final.pdf	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Protocol clean	Standalone/Sponsor's Protocol	Vit B3 Protocol March Clean Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Protocol clean	Standalone/Sponsor's Protocol	Vit B3 Protocol October 2 clean.docx	Y	No	10/04/2018	Carlos Gustavo De Moraes (cvd2109)

Archived	Document Identifier	Document Type	File Name	Active	Stamped	Date Attached	Created By
No	Vit B3 Protocol June 11 2019	Standalone/Sponsor's Protocol (tracked)	Vit B3 Protocol June 11 2019.docx	Y	No	06/12/2019	Marzhan Atakulova (ma3448)
No	Protocol tracked	Standalone/Sponsor's Protocol (tracked)	Vit B3 Protocol March Tracked Final.docx	Y	No	03/07/2019	Carlos Gustavo De Moraes (cvd2109)
No	Protocol (highlighted changes)	Standalone/Sponsor's Protocol (tracked)	Vit B3 Protocol October 2 tracked.docx	Y	No	10/04/2018	Carlos Gustavo De Moraes (cvd2109)
No	Montreal Cognitive Assessment (MoCA)	Study Material/Instrument	MOCA-Test-English.pdf	Y	No	03/23/2018	Carlos Gustavo De Moraes (cvd2109)

Tasks