v1 Data management Major Project

Research Project

Title of your research project

The relationship between early gut microbiota composition and executive functioning in children

Give a short abstract of your research project.

Animal models suggest that the gut microbiota can influence cognitive development and functioning. A first human study found associations between infant gut microbiota composition and cognition at 2 years of age. The goal of the present study is to investigate whether infant and child microbiota composition can predict individual variation in executive functioning in childhood. In an ongoing longitudinal project, stool samples for gut microbial determination were collected at several times in the first year and at 6 years of age. Executive functioning was measured at age 6, 8 and 10 years, with a diverse set of tests and questionnaires. We hypothesize that gut microbiota composition in infancy and at 6 years of age will be associated with executive functioning in childhood.

Organisational context

Researcher(s)

Henrik Eckermann

Contact Information

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Research Institute

Behavioral Science Institure

Chair group

Not answered

Supervisor(s)

Prof. Dr. Carolina de Weerth
Dr. Roseriet Beijers
Adjun. Prof. D.Sc. Leo Lahti

Funder & ID number

Not answered

Start date of the project

10.12.2018

End date of the project

15.06.19

Data Management Roles

Who is involved in writing the DMP?

Henrik Eckermann

Who is collecting the data?

The data has been collected by researchers in the Psychobiology lab group under supervision of Prof. Carolina de Weerth.

Who is processing and analysing the data?

Henrik Eckermann
Leo Lahti

Who is preserving and giving access to the data after research?

Carolina de Weerth

Who owns the data?

Carolina de Weerth

Are there any other roles that are relevant to the management of your research data? Please indicate the role(s) and person(s).

Leo Lahti will supervise the analyses.

Costs

What type(s) of costs do you foresee for data management (both during and after research is completed) and what amount of cost do you estimate? How will these costs be covered?

There are no further expected costs for data management other than what is covered by the Radboud University

Collection process

Do you make use of existing data? Is so, fill in 5.2 and 5.3. If not, fill in 5.4

Yes

Describe the collection process of the existing data. Where do the data come from? Indicate if the existing data are critical, sensitive and/or standard data.

The data has been collected during home visits (stool samples) or in a (mobile) lab. Stool samples have been collected by the mothers at home, were then frozen and collected by a researcher, stored at the RU and then transported to Wageningen University where they have been analzed.

Cognitive measurements (BRIEF and Digit scale) have been obtained during home visit or when mothers came into the lab. The data has been stored in an RU folder.

What arrangements have been made regarding the use of these existing data? If applicable, include a copy of or link to the memorandum or agreement that contains the terms and conditions of using the existing data.

Not answered

Briefly describe your data collection process and indicate if you are collecting critical, sensitive and/or standard data?

Not answered

Overview of research data

Please specify and describe for each data stage what type of data is involved (a) and how the data is classified (b)

RAW (competition sensititive):
- BRIEF questionnaire (SPSS data table)
- Digit scale (SPSS data table)
- GONOGO&STROOP (SPSS data table)
- EISENBERG (Video recordings)
- HITCHIP data (biom file)

PROCESSED(competition sensitive):
- BRIEF (total score and subscores per scale in xlsx file)
- digit scale (total score and subscores in xlsx file)
Eisenberg (csv file)

ANALYZED (standard):
file types:
- .Rdata (Rdata files), .R (scripts for analysis), .Rmd (analyses report source file), .html (analyses report), ipynb (python and R interactive analysis file) and .PNG (graphs and tables for paper)

Informed consent

Will you need the informed consent of participants?

Informed consent has been obtained.

Describe the content of your informed consent form and the accompanying information document or add the documents as attachments.

See attachment

Ethics committee

Do you need approval of the ethics committee? If yes/no, why (not)?

yes

If applicable, provide the date of the official approval.

07.03.2007

Privacy in the collection phase

Why it is necessary to collect the critical data mentioned in question 6 to achieve the goals of your research project?

The data is required to perform the analyses to answer my research question. Unless the owner of the data decides to treat this data as open accessible it must be considered competition sensitive.

How do you ensure that you do not collect more data than necessary for achieving the goals of your research project?

not applicable

How long are you going to retain this critical data?

only for the time of my major project (Juli 2019)

Security in the collection phase

How will you deal with security issues that concern the collection of data?

not applicable

Storing during research

Indicate the storage location of all data types you mentioned in question 6.

RAW:
Only RU folder

Processed:
RU folder and encrypted on a laptop

Analyzed:
RU folder and Encrypted on a laptop

Indicate your backup procedure. Pay attention, this may differ among files if you have different storage locations.

The RU folder works as a backup for those files that I store additionally on my laptop. The scripts are standard data that cannot be run without the data. Those scripts will be backed up using a version control system (git on bitbucket.org).

Mention the software you will use to analyse and/or store the different types of data.

R and Python
Encryption with FileVault

Give an indication about the size of your data.

roughly 200MB

Privacy in the processing/analysing phase

If applicable, how will you anonymise or pseudonymise critical data after collection or ensure the privacy of participants in another way?

not applicable

Structuring and documenting your data

Indicate a folder and file naming structure, including versioning.

Data will be stored as an R project. See example of a previous project in a screenshot. The new data will folow a similar structure. The only files that require versioning a standard data and git will take care of version control.

In which way are you going to describe the content of your dataset?

In the data folder, there is a .txt readme file with information about the data. Processed data documentation is part of notebook documents (see below).

In which way are you going to describe how you prepared your dataset for analysis?

I use both Rmarkdown and Jupyter Notebook format where I code and document the code from RAW to analyzed data to allow full transparancy and reproducibility for other researchers.

In which way are you going to describe the structure of your dataset?

By presenting the structure using R functions in the top of my reporting documents and in the readme file in the corresponding data folder.

Sharing data during research

Do you need to share your data with others during your research? If not, you can leave questions 14.2 and 14.3 blank.

Yes

Describe who will have access to the data and which access level applies. If applicable, appoint limited and temporary access.

Leo Lahti has access to the HITCHIP data via Wageningen University (only the microbiota data is also in the database at Wageningen University)

Are there any agreements made on how the data will be used and shared during your research?

No data will be shared. Leo Lahti already has access to the HITCHIP data and will supervise my data analysis files but not RAW or Processed data of the executive functioning measures (everything other than the biom files)

Long-term storage

Please indicate whether you will store your data for the long term, concerning scientific integrity and/or reuse of the data. If not, explain why.

no, because I am only granted access to the data as part of this major project. I do not own this data.

Please indicate where you will store your data long term and what the minimum and maximum retention period will be.

Not applicable

Do you need to migrate your data to a format or formats other than they are in? If so, please provide details.

Not applicable

Do you need to store software and/or tools together with your data? If yes, describe what software and/or tools you will store together with your data.

Not applicable

Metadata and documentation

Is the metadata of the archive of your choice rich enough?

yes

If you want to add an additional metadata schema, describe which metadata you will add and how you are going to do this?

not applicable

What documentation will you add to your data files for long term storage?

not applicable

Giving access to data

Do you want to share your data with others and/or does your funder/journal/institute wants you to share your data with others? If not, please give the reason why.

For this project, there is no plan to share data. I am not the owner of the data and cannot answer any further.

Are there any privacy or security issues that concern the sharing of data after research? If so, please describe them and indicate how you will address them.

not applicable

Please indicate which access level you want to use, who controls the access to your data and if you are going to place an embargo period on the access of your data.

not applicable