

# The MDEE Study

## Mitochondrial Daily Energy Expenditure

Investigating energy flow through the mind and mitochondria



## Columbia University Irving Medical Center

The MDEE study is a research study taking place at the Harkness Pavilion at the **Columbia University Irving Medical Center (CUIMC)**, a leading medical institution of care and research.

The partnering Department of Neurology and Department of Psychiatry have a long history of clinical care and research in studying the effects of stress on the body and in mitochondrial disease.

CUIMC is located at 168th Street and Broadway in Upper Manhattan, by the Hudson River in New York City, NY.

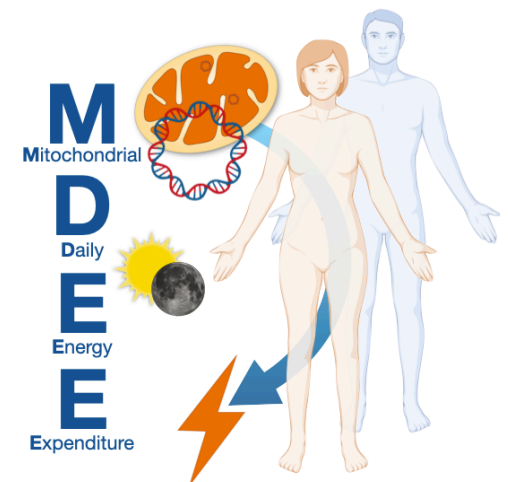


## Understanding Energy & Mitochondrial Disease

Researchers are beginning to understand the link between the mind and body, and how this connection influences aging and possibly symptoms of mitochondrial disease. We are investigating how molecular processes within mitochondria relate to the human experience. We hope to use this knowledge to eventually develop a more integrative model of health assessment that can improve medical care.

**The goal of the MDEE study is to understand how mitochondria, emotions, and sleep influence daily energy expenditure.**

Each cell of the body contains hundreds of mitochondria with their own DNA: the mitochondrial DNA (mtDNA). Mitochondria transform energy and produce signals enabling cells to function normally - to sustain health. Measuring how much energy mitochondria consume can tell us about the function and resilience of the body.



# The MDEE Study

**A full day study**, where participants will:

- Sleep overnight at Columbia University Irving Medical Center
- Have body composition assessed
- Have blood drawn with an IV catheter
- Collect saliva hourly with a little cotton swab
- Complete questionnaires on an iPad



## Study tests

Participants will arrive at 7 AM and complete a brief medical exam. Participants will stay for a whole day (overnight, 23 hours) in a special room that measures whole-body energy consumption, while blood samples are collected each hour. Body temperature, heart rate, movement, and sleep activity will be monitored.

Meals will be provided throughout the study.

The following morning, participants undergo a body composition assessment in large, spacious and quiet scanner. The whole study will last about 27 hours.

## Confidentiality

All results and biological samples are kept **strictly confidential**.

## Compensation

Participants who complete the research study receive a **\$400 compensation**.

## Eligibility

You are eligible if you are a woman or man between the ages of 18 and 65, and willing to visit Columbia University Irving Medical Center (CUIMC) for one day.

We are recruiting individuals without any diagnosis, and individuals with the following mtDNA mutations:

- m.3243A>G (MELAS)
- Single, large scale deletion (CPEO)

## The MDEE Team

The MDEE team is a group of caring clinicians and researchers from academic disciplines including mitochondrial medicine, physiology, nutrition, and psychology.

Lead Study Physician: Michio Hirano, MD

Principal Investigator: Martin Picard, PhD

**For more information about the study, please contact the study coordinator.**



## Contact Information

**Do you have questions about the study?  
Would you like to participate?**

**Shannon Rausser | Study Coordinator**

sr3610@cumc.columbia.edu

## Sponsors

IRVING INSTITUTE FOR

clinical and translational research

