



Interactions between the lipidome and genetic and environmental factors in autism

What is a lipid?

Lipids are fat molecules that play important roles in neurodevelopment and metabolism.

How can I change my lipidome?

It appears that the lipidome is affected by many factors. Some of these factors are modifiable (eg. diet, medications, sleep) whereas others are not (eg. age, sex, genetics). However, we don't yet know exactly how changing specific dietary elements or medication will impact various aspects of the lipidome.

What does a "healthy" lipidome look like?

There are some lipids that are well-known and which have clear links to health. For example, low total cholesterol, low LDL (low-density lipoprotein), high HDL (high-density lipoprotein) and low triglycerides are strongly associated with improved cardiometabolic health, a healthy diet and regular exercise. However, there is still much that we don't know about the lipidome – it is made up of thousands of lipids that we have only recently started being able to measure and study. It is these lipids that our study focused on.

Will changing my lipidome reduce sleep problems?

We found some evidence that lower levels of some long-chain polyunsaturated acid species (such as arachidonic acid and DHA) may contribute to sleep problems. However, we did not formally test this as an intervention in a clinical setting, so there is still some way to go until this link is proven; it is not yet clinically recommended.

Can the lipidome be used to improve autism diagnosis?

Our results suggest measurements of the lipidome are unlikely to improve autism diagnosis. This is because the associations between autism diagnosis and the lipidome were relatively weak. Furthermore, these weak associations could generally be explained by sleep problems and dietary differences. Instead, we believe that the lipidome may be better suited to studying the biological effects of conditions that commonly co-occur with autism – questions that are understudied yet important to the autistic community.

