

# Depression, but not anxiety, linked with inflammation and metabolic change

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Anxiety and depression are often linked and assumed to be closely related, but now research has shown for the first time that depression and anxiety have different biochemical associations with inflammation and lipid (fat) metabolism. This indicates that different, more targeted treatments may be possible to treat anxiety and depression. This work is presented at the ECNP Congress.

Depression and anxiety share several symptoms, have common risk factors, and often they are treated with the same drugs. Over 50% of patients with [depression](#) (Major Depressive Disorder) also have a history of anxiety. Nevertheless, psychiatrists classify them as different disorders, although until now it has been difficult to identify biochemical evidence for this.

Scientists from the Netherlands Study of Anxiety and Depression (NESDA) used [blood samples](#) from 304 people with current depression, 548 with anxiety, 531 with both depression and anxiety, 807 with remitted disorders, and 634 healthy controls.

Using a nuclear magnetic resonance detector they tested for associations between 40 metabolites found in blood and symptoms of depression, and symptoms of anxiety (such as panic, pathological worry, etc.).

"We have two main findings," said Hilde de Kluiver, of Amsterdam UMC. "Firstly we found that the depressed group showed evidence of greater inflammation which was not seen in the anxious group. We also found that the depressed group had very different amounts and types of [lipid](#) in their blood. For example, depressed people had high levels of triglycerides, but lower levels of omega-3-fatty acids. In contrast, those people who had anxiety disorder had a lipid composition very similar to the healthy control group.

We also found that those metabolites associated with depression were also associated with the severity of the depression: in other words, if you had more of a lipid associated with depression, your depression tended to be worse."

In recent years, depression has been associated with disturbances in the body's [immune system](#) and metabolism, and previous researchers have shown that depressed people tend to have different biochemical markers to those of healthy people. However, no such analysis of such a wide set of markers has been undertaken for [anxiety](#). This work shows, for the first time, that the immune system and lipid metabolism changes in depressed people but not in anxious people.

The researchers hope that these findings will lead to better treatments. "Our group is now planning to test whether depressed people with altered inflammation might respond to treatment with [anti-inflammatory drugs](#)," said Hilde de Kluiver.

Commenting, Dr. Philippe Nuss (Hôpital Saint-Antoine, Paris) said "This is an important finding for several reasons. First it identifies easy-to-measure

blood biomarkers characterizing a subtype of depression whose underlying mechanism is specific and will probably need an appropriate treatment. It also emphasizes the fact that mental disorders should be seen in a whole body perspective where major regulatory physiological systems such as immunity and lipid metabolism are involved. In addition, both immunity and lipids are strongly involved in brain metabolism. It is thus not surprising that Ms de Kluiver's work shows that the severity of depression is greater in patients with more impaired biomarkers."

Dr. Nuss was not involved in this work.

**More information:** Abstract P.721 Metabolomic profiles discriminating anxiety from depression

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