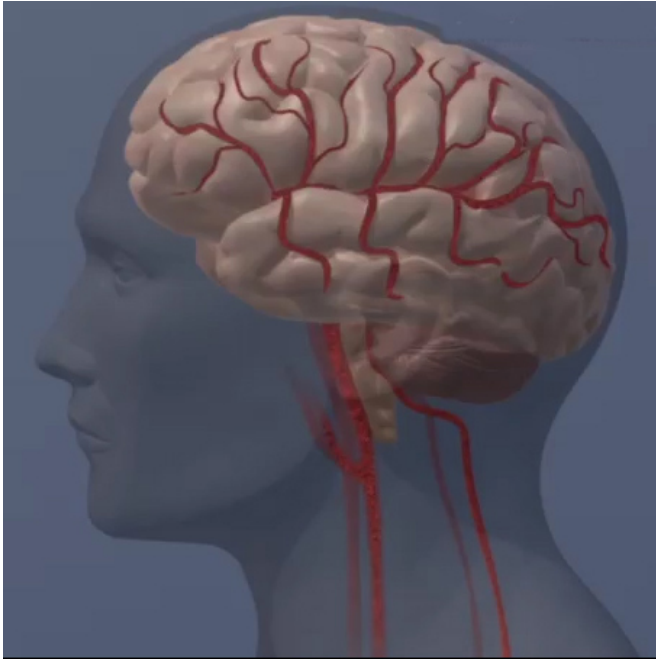


Researchers discover brain inflammation in people with OCD

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A new brain imaging study by the Centre for Addiction and Mental Health (CAMH) shows for the first time that brain inflammation is significantly elevated - more than 30 per cent higher - in people with obsessive-compulsive disorder (OCD) than in people without the condition. Published today in *JAMA Psychiatry*, the study provides compelling evidence for a new potential direction for treating this anxiety disorder, which can be debilitating for people who experience it.

"Our research showed a strong relationship between [brain inflammation](#) and OCD, particularly in the parts of the brain known to function differently in OCD," says Dr. Jeffrey Meyer, senior author of the study and Head of the Neuroimaging Program in Mood & Anxiety in CAMH's Campbell Family Mental Health Research Institute. "This finding represents one of the biggest

breakthroughs in understanding the biology of OCD, and may lead to the development of new treatments."

Inflammation or swelling is the body's response to infection or injury, and helps the body to heal. But, in some cases, this immune-system response can also be harmful, says Dr. Meyer, who holds a Canada Research Chair in the Neurochemistry of Major Depression. Dampening the [harmful effects](#) of [inflammation](#) and promoting its curative effects, through new medications or other innovative approaches, could prove to be a new way to treat OCD. In an earlier study, Dr. Meyer discovered that brain inflammation is elevated in people with depression, an illness that can go hand in hand with OCD in some people.

A novel direction for developing treatments is important, since current medications don't work for nearly one in three people with OCD. About one to two per cent of adolescents and adults have OCD, an anxiety disorder in which people have intrusive or worrisome thoughts that recur and can be hard to ignore.

The study included 20 people with OCD and a comparison group of 20 people without the disorder. Doctoral student Sophia Attwells was first author of the study. The researchers used a type of brain imaging called [positron emission tomography](#) (PET) that was adapted with special technology at CAMH to see inflammation in the brain. A chemical dye measured the activity of immune cells called microglia, which are active in inflammation, in six brain areas that play a role in OCD. In people with OCD, inflammation was 32 per cent higher on average in these regions. Inflammation was greater in some people with OCD as compared to others, which could reflect variability in the biology of the illness.

Additional investigations are under way to find low-cost blood markers and symptom measures that

could identify which individuals with OCD have the greatest level of inflammation and could benefit the most from treatment targeting inflammation. Another notable finding from the current study - a connection between resisting compulsions and brain inflammation - provides one indicator. At least nine out of 10 people with OCD carry out compulsions, the actions or rituals that people do to try to reduce their obsessions. In the study, people who experienced the greatest stress or anxiety when they tried to avoid acting out their compulsions also had the highest levels of inflammation in one brain area. This stress response could also help pinpoint who may best benefit from this type of treatment.

The discovery opens different options for developing treatments. "Medications developed to target brain inflammation in other disorders could be useful in treating OCD," says Dr. Meyer. "Work needs to be done to uncover the specific factors that contribute to [brain](#) inflammation, but finding a way to reduce inflammation's harmful effects and increase its helpful effects could enable us to develop a new treatment much more quickly."

More information: *JAMA Psychiatry* (2017). [DOI: 10.1001/jamapsychiatry.2017.1567](https://doi.org/10.1001/jamapsychiatry.2017.1567)

Provided by Centre for Addiction and Mental Health

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