



# EDAC

## Eating Disorders and Autism Collaborative

*A UK-wide network bridging the gap between autism and eating disorders research*

# About the Brain:



# Autism and Eating Disorders

- @edac.uk
- @EDACautism\_ED
- EDACResearch.co.uk
- Peacepathway.org

KING'S COLLEGE LONDON
 UNIVERSITY OF ABERDEEN
 THE UNIVERSITY OF EDINBURGH

Research England
 Arts and Humanities Research Council
 Medical Research Council
 Medical Research Foundation
 NIHR

**PEACE**

At both **EDAC** and **PEACE**, we strive to learn more about autism and eating disorders.

We have been using **neuroimaging techniques** to understand the Autistic brain as well as the impact of an eating disorder.

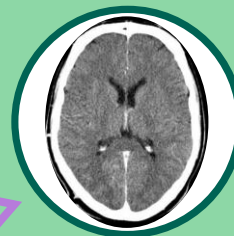
We are keen to share what we know so far!



## Neuroimaging: What is it?

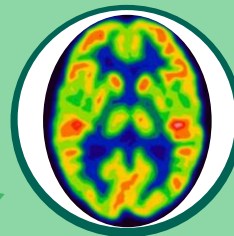
**Neuroimaging techniques** are a collection of approaches used to investigate the **structure** and **function** of the human brain.

There are many **different** techniques scientists use to view the brain!



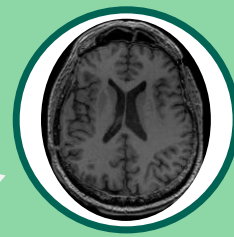
### CT Scan

Uses a series of X-rays to view the brain



### PET Scan

Uses low doses of radiation



### MRI Scan

Uses magnetic and radio waves



## Why Neuroimaging?

Neuroimaging techniques help researchers learn about **human behaviour** and **disorders**, which could **improve clinical practice**.

Here are some **examples...**

### Roots of Human Behaviour

- How do we manage our emotions?
- How do we make decisions?



### Causes and Consequences of Disorders

- Observe early signs of a disorder
- Highlight the impact of disorder symptoms



### Benefits to Clinical Practice

- Assist with classification of disorders
- Monitor the effect of treatments

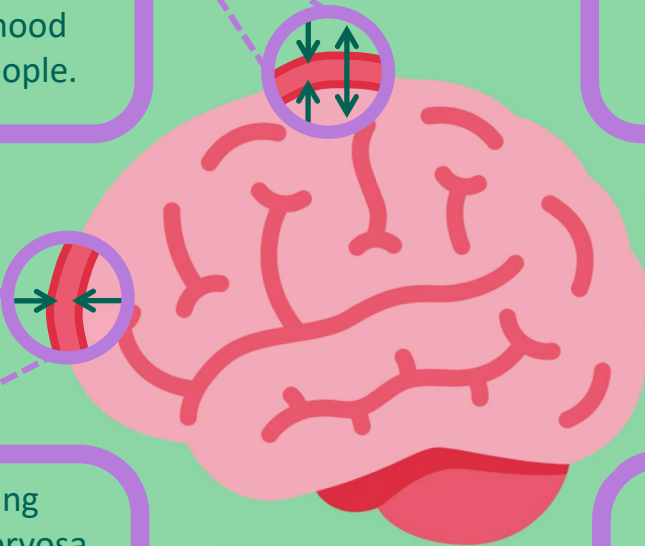




## What do we Know?

In **Autistic people**, the outer layer of the brain, called the **cortex**, becomes much **thicker** in childhood, then much **thinner** in adulthood compared to non-Autistic people.

**MRI scans** from people recovered from AN show their volume and their cortex are **restored back to baseline**. Studies show weight restoration alone **may not be enough** to restore brain volume.



\* Anterior Cingulate Cortex  
\* Orbitofrontal Cortex

Those with restrictive eating disorders such as anorexia nervosa (**AN**) show a **thinner cortex** and **smaller brain volume** compared to individuals without AN. This is due to malnutrition, but also due to disordered eating behaviours.

People with **AN** show differences in brain regions involved with our ability to **monitor conflict**, **manage emotions**, and **experience reward**. No specific brain region is associated with **Autistic characteristics**. We have a lot more to learn!



## Why is this Information Important?

### *Eating disorders are not a choice*

They involve changes in brain structure and function, which affect our thoughts, feelings, experiences and behaviours.



### *Autistic people experience eating disorders differently*

Brain differences between Autistic relative to neurotypical people means Autistic individuals are likely to experience eating disorders in a different way or be more likely to develop an eating disorder.



### *Eating disorder recovery means more than just weight restoration*

As weight restoration does not always lead to full recovery of brain volume, neuroimaging research raises the question:  
*what does true recovery mean?*



## Interested in learning more?

We are always thinking about conducting **future** neuroimaging research.

If you are keen to participate in upcoming studies and help us learn more, contact us at [EDAC@ed.ac.uk](mailto:EDAC@ed.ac.uk).

Stay up-to-date on our research on the [EDAC](#) and [PEACE](#) websites!