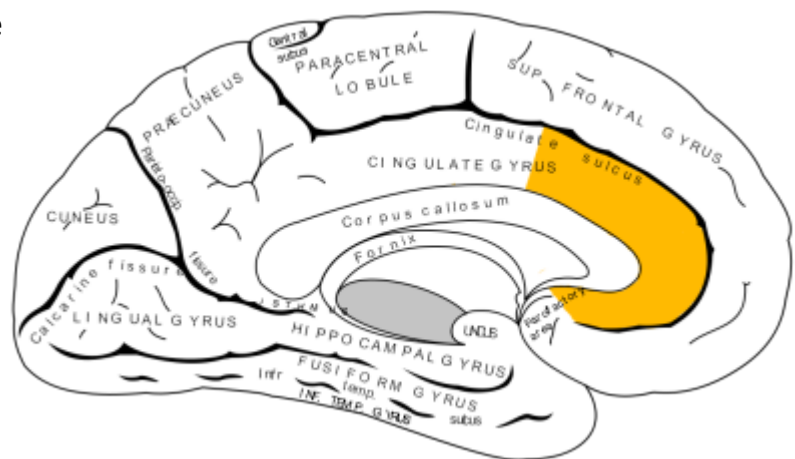


# Anterior cingulate cortex

The anterior **cingulate cortex** (ACC) is the frontal part of the **cingulate cortex** that resembles a “collar” surrounding the frontal part of the **corpus callosum**. It consists of **Brodmann** areas 24, 32, and 33.



The **anterior cingulate cortex (ACC)** is a region in the **medial frontal lobe**, located in the **anterior part of the cingulate gyrus**, just above the corpus callosum. It is part of the **limbic system** and plays a key role in several cognitive and emotional functions.

## Functions

### 1. Cognitive Control & Attention:

1. Helps in **conflict monitoring**, adjusting behavior when errors are detected.
2. Plays a role in **task switching and response inhibition**.

### 2. Emotion Regulation & Decision-Making:

1. Integrates **emotional and cognitive information** to guide behavior.
2. Helps in evaluating **reward and punishment** signals.
3. Dysfunction in this area is linked to **depression and anxiety disorders**.

### 3. Pain Perception & Regulation:

1. Involved in the **affective (emotional) component of pain**.
2. Patients with ACC lesions may experience **pain as less bothersome**, even if they can still feel it.

### 4. Autonomic Function:

1. Regulates autonomic responses such as **heart rate and blood pressure**.
2. Involved in responses to **stress and fear**.

### 5. Social Behavior & Empathy:

1. Plays a role in **understanding the emotions of others**.
2. Dysfunction has been implicated in **autism spectrum disorders and schizophrenia**.

### **Subdivisions of the ACC:** - **Dorsal ACC (dACC):** More involved in **cognitive control, attention, and motor functions.** - **Ventral ACC (vACC):** More involved in **emotion regulation and autonomic functions.**

### **Clinical Relevance:** - Overactivity of the ACC has been linked to **obsessive-compulsive disorder (OCD)** and **chronic pain conditions.** - Underactivity is associated with **depression, schizophrenia, and ADHD.** - Damage to the ACC can lead to **apathy, emotional dysregulation, and impairments in motivation.**

Would you like information on specific disorders related to ACC dysfunction?

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## Functions

see [Anterior cingulate cortex functions.](#)

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Last update: **2025/02/18 12:34**

