

Module:

Psychological Foundations of Mental Health

Week 4:

Beyond basic cognition and emotion



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Topic 3:

Delving deeper into social cognition

Part 2 of 4

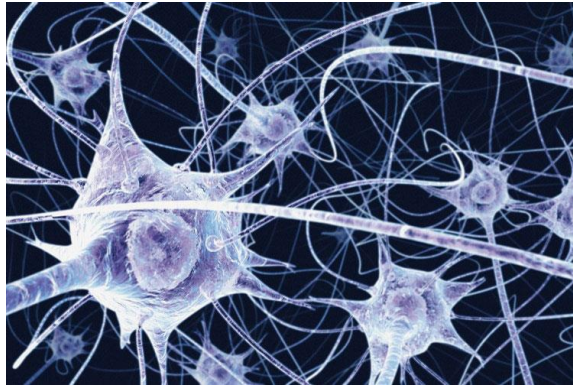


The nature of social cognition

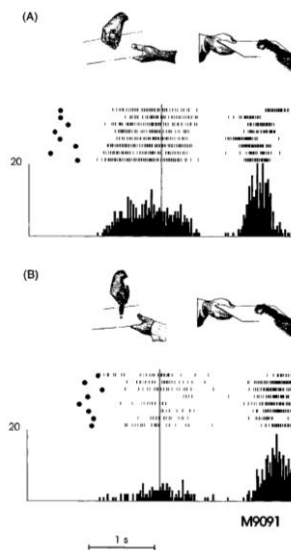


Caroline Catmur

A new frontier of social cognition: Mirror Neurons



Mirror neurons



Motor neurons

They fire when an action is performed

Mirror neurons also respond when someone else is performing an action

Why are these cells important for social cognition?

They seem to bridge the gap between self and others



Gallese, Fadiga, Fogassi & Rizzolatti (1996)

What do mirror neurons 'do'? (1)

What do mirror neurons do?

How do they contribute to social interaction?



Responses at the neuronal level point to functions:

Speculation

Role in social cognitive
processes

Relationship with neurological and
psychiatric disorders

What do mirror neurons 'do'? (2)

Causal evidence in 2 areas

Action perception

Imitation

Process other people's
actions

Copying observed actions

Social skills



Broader involvement in social cognition?



Evidence for the involvement of mirror neurons in social cognition?

- Little direct evidence
- Bridge gap between self and other?
- Low-level empathy

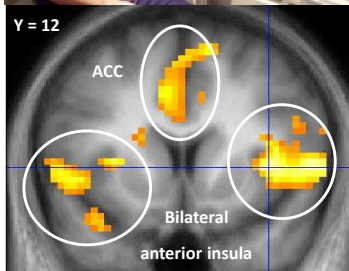
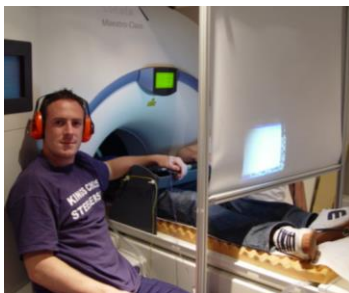


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Mirror neurons and empathy (1)



Are mirror neurons involved with empathic actions or emotions?

No direct (single-cell) evidence

There are overlapping brain responses for self and other emotions

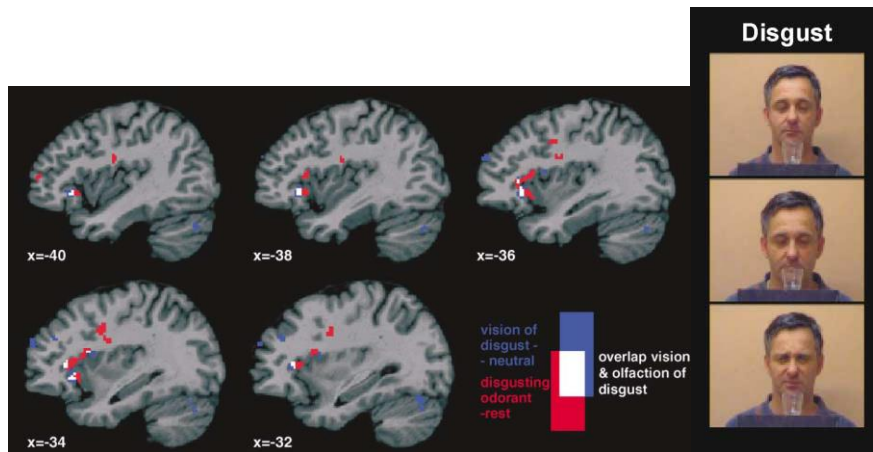
Singer et al (2004)

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Mirror neurons and empathy (2)



Wicker et al (2003)

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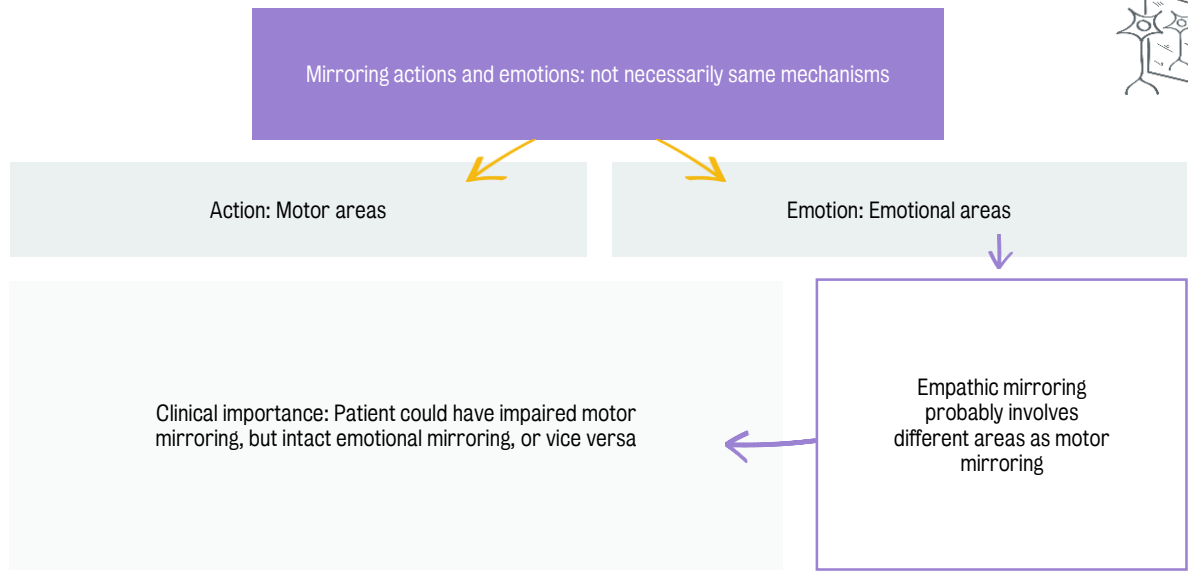
Main issues to consider in mirror neuron research

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Issue 1: mirroring actions versus mirroring emotions

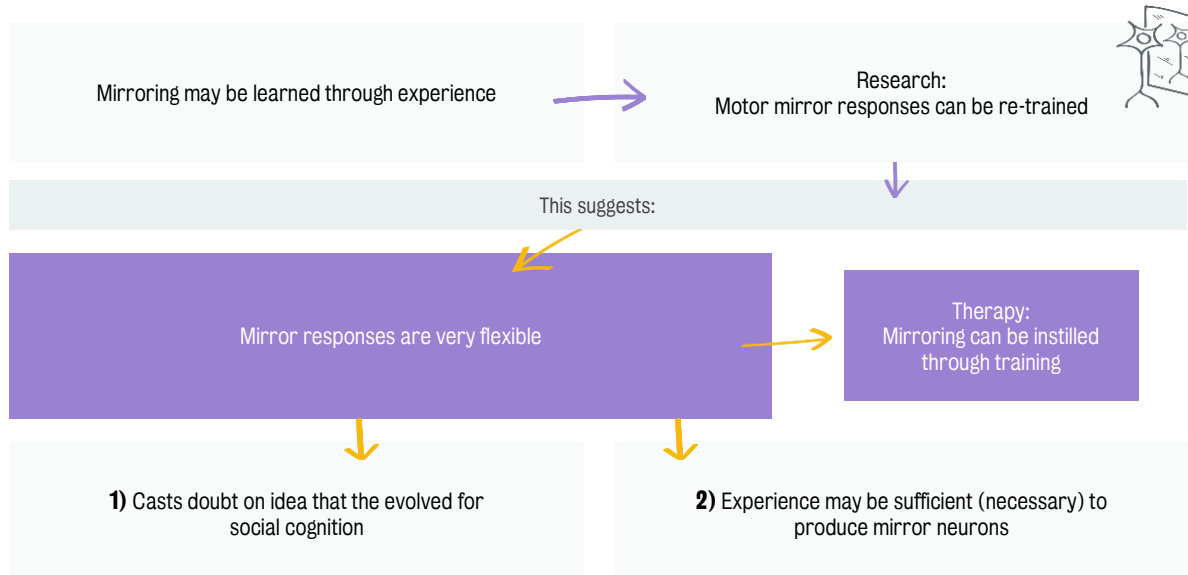


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Issue 2: Mirroring may be learned through experience



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Issue 3: self-other distinction

Problem of self-other distinction

If we mirror others, how do we know who is performing an action?

Mirror neurons are part of a bigger network that deals with social information



Summary

Action mirror neurons = motor neurons which also respond to others' actions

A similar mechanism may exist for emotions

Empathic mirroring:

- unlikely to involve same brain areas as action mirroring
- may arise from experience
- may require an additional process of self-other distinction

